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Building Records in the Domesday Book.

THE recent commemoration of the Domesday Book, an original record of undisputed authority and truth, to which we may turn, on this the eight hundredth anniversary of its compilation, for vivid pictures of English arts and sciences, manners, and customs "when King Edward was alive and dead," and when King William "passed over into England," may perhaps induce our readers to ask what information may be gleaned from its pages respecting constructive and artificial handiwork which may properly be discussed in the columns of the *Builder*. Nor is the answer to such an inquiry disappointing. There are numerous entries which incidentally enable us to reconstruct in our ideas a very faithful retrospect of the manner in which the surveyor, the architect, and the artificer brought his respective mystery,—to use the word in its Mediæval sense,—to bear upon necessities of Anglo-Saxon life. There are many invaluable manuscripts of the period of Domesday which, fortunately for the profitable delectation of all who take an interest in these things, still preserve exceedingly beautiful, yet simple representations of churches, houses, the process of building, the tools and appliances in use, and the whole apparatus of domestic economy, agricultural operations, and religious or secular ceremonial. These are illustrated by numberless entries in Domesday Book, which they also, in turn, explain and elucidate. The church (*ecclesia*) is frequently mentioned, yet there are many churches which possess archæological evidence of an existence before Domesday that have not been mentioned in it, and some antiquaries incline to conjecture that the mention of a priest or *presbyter* in any locality implies the existence of a church there, as a means for accounting for the apparent fewness of churches in some counties. For example, one church only is mentioned in Cambridge, two in Staffordshire, and three in each county of Buckingham and Hertford. On the other hand, Suffolk is credited with as many as 364, and Norfolk, Lincoln, York, and Hants have a comparatively large number of churches. The probability is, that as Domesday was not a survey of the condition of the church, but of those places whereto the king had to look for a payment of some kind, either in money, produce, or service, those churches only are mentioned which fall under this category. It is curious that the diminutive form, *ecclesiola*, "a little church," is found occasionally in the Domesday for Kent, Dorset, Hants, and Sussex. Of what dimensions could these little churches have been, when none of the Saxon churches of which we have any knowledge have any pretensions to size? Take, for instance, the well-known Church of St. Lawrence at Bradford-on-Avon, with a nave length of 25 ft. 6 in., and width of 13 ft. 4 in., a church specially called "a little church" by William of Malmesbury, writing in A.D. 1125; or the Saxon Chapel at Escombe, in Durham, near Bishop Auckland, measuring 43 ft. 6 in. nave length, with a width of 14 ft., and chancel only 10 ft. square, inside measures. The recently-discovered Saxon chapel at Deerhurst, near Tewkesbury, of which we gave a description at the time, measures, for nave, 25 ft. 6 in. by 15 ft. 10 in.; the chancel, 14 ft. by 11 ft. 2 in. In one county in the South it has been computed that seventy male adults were the proportionate number to a church. This will give some tangible idea of dimensions of churches in times before the Domesday.

Of secular buildings, Domesday notices the castles, numbering in all about twenty, a total which would seem to have been far below the real number, most of which had arisen on sites originally appropriated to similar uses in far earlier ages. These were called *castella*, but the *castrum*, a word perhaps employed with the same signification, is only found in six localities,—Dunhevet (now Launceston), Trematon, Harundel (or Arundel) in Sussex, Huntedon (or Huntingdon), Montgumeri, and Stamford. The stone-built house, or *aula*, sometimes *halla* or *haula*, for an aspirate more or less was not of much worth in Mediæval Latin (nor is it now in European languages, except for orthographical and philological purposes, but the Domesday scribe depended to some extent on phonetics), represented the mansion of the superior lord or squire, and was the usual appendage of a manor, but not invariably, and we read of "horses in the hall" in the Domesday, very much as we might to-day read of, say, the stables at Wynnstay. The ordinary house, or *domus*, has many interesting points which cluster around it. It was probably of rectangular ground-plan, of wattle and dab, or strengthened with timber corners, simple in design, and of material ready to hand, with round-headed doorway and windows of very modest dimensions. The roof was thatched, and the whole edifice could but have been primitive in fabric when churches frequently resembled barns. In some cases the use of the word "house" is distinguished with an epithet such as "new," "very good," "able to defend itself," or "fit to be assessed," and so forth; and house repairs are distinctly alluded to on one occasion as "*domorum emendationes*." There was also the hospice, perhaps a tavern or inn, which occasionally occurs as *domus hospitata*. Some consider with Sir Henry Ellis, a great Domesday scholar, the term *haga*, which also occurs in Domesday, to have represented a house or dwelling, but the term also denotes land inclosed with hays or hedges.

Monasteries were not infrequent in England in Anglo-Saxon days, and some of the most influential and powerful religious establishments (when the monastery was the centre of all real progress, the free library, the public hospital, the ever-open refuge and ready sanctuary, the school of art and design, the bank and the bazaar, the college and the club), such as Glastonbury, Malmesbury, Bath, Chertsey, Bury St. Edmund's, St. Alban's, Evesham, Pershore, Canterbury, Burton-on-Trent, Worcester, Gloucester, and many others, had risen to a great pitch of reputation long before King William passed over from France to take possession of his kingdom. For all that, seven times only are monasteries mentioned in the book, and this probably for the same reason which we suggested in our notice of the Domesday Church. There was also the grange, or monastic farm, a term strangely perverted nowadays into a meaningless synonym for a dwelling-house, but, in the days of the Domesday, strictly applied only to the farmstead belonging to and at such a distance from its owner, a rich monastery in a distant shire, as to require a systematic and subordinate rule, where the monks, whose daily round consisted of alternate spells of work and prayer, bodily and mental exercises, practised and elaborated the arts of husbandry under the eyes of a peasantry not slow to perceive their lessons of practical utility. The houses of the villains, who occupied the condition of the present peasantry, were termed *mansuræ* or *masuræ*. The terms seem to imply that these persons remained on the estate without power of removal, at any rate against the consent of the lord. But freedom in this respect is sometimes particularised. The migration of a labouring population from district to district was in Domesday times sternly prohibited, and even in comparatively recent days there were legal formalities to be undergone by the workman or labourer before he could wander very far from the limits of the "hundred" in which his proper parochial domicile was situated. One class of artisan, the smith (*faber*), presumably the blacksmith, received, perhaps, more encouragement than any other except the privileged goldsmith, who seems always to have enjoyed much consideration throughout the ancient world. In the Herefordshire Domesday there is an interesting notice of six smiths, each of whom had his own *forgia*, or

forge, paying a tax to the king of a penny annually for it, as well as making 120 horse-shoes with the king's iron. For this service the workman received a customary payment of threepence. To the blacksmith the agriculturist looked for the construction and repair of his ploughs and implements, and no doubt the miller and knight had frequent need of his important services for repairing the water-mills and the armour in use at the period.

The manor or *manerium*, as the estate was intituled, was divided by hedges and ditches very much in the same way as country property is now laid out, and we know from the evidence of documents varying from two to three hundred years older than Domesday, how carefully these artificial boundaries were perambulated on a change of ownership taking place; for almost all grants of land contain elaborate statements relating to the situation of the bounds of the land. The parks, a term of remote origin, also were favourite kinds of property with the noblemen and rich land-owners. They are distinguished sometimes as parks of wild animals, of beasts, or of beasts of the wood, and the laws relating to the park and the chace called into existence a large class of hunstmen, verderers, and other dependents. Notwithstanding this conservative tendency, the felling of the forests went on extensively, and wood was in constant demand for fuel, for building purposes, and especially for palisading and enclosures. The fishery, again, was a property highly appreciated and constantly mentioned as an item of taxable value in the survey. It generally was described as a fishery of eels, and in the Domesday of the Abbey of Ely, the "Island of Eels," a large number of such fisheries, chiefly *weres* or weirs, and ponds are entered as rendering to the abbey many thousand eels yearly for the support of the inmates to whom these creatures doubtless formed a staple article of food. They were calculated by *stikes* of twenty-five each, so called because they were strung together on a *stic* or withy. Besides the eel fishery, the salmon fishery and the herring fishery occur, but far less often. The vineyard, the orchard, the garden, the common pasture for the village animals, the fish-pond, the coppice, the sheep-fold, the wood, and the marsh were all rural features quite familiar to the eyes of those who lived in Domesday times, and their mention casually introduced into the formal entries in which the estate of the principal owner in the parish was described for assessment, plainly indicates that after all, in a very great measure, the aspect of the country has undergone but little modification during the last eight hundred years, notwithstanding the development of special agricultural principles such as drainage, levelling, hedge-clipping, wire-fencing, and the more universal adoption of rectilinear limits of enclosures. The mill was an important element in property, and it is interesting to know that wherever a mill is mentioned in Domesday Book we generally find one still existing,—another instance of the long duration of rural employments. These mills anciently belonged to the chief tenants, the Lords of the Manors, and it was not permitted that an under-tenant should grind his corn at any other than his lord's mill. To this circumstance, Mr. Parish, who has recently and ably edited the Sussex Domesday, points, as sufficiently accounting not only for the great number of mills noticed in the survey as objects of profit to the landowner, but for the large returns which they are continually stated to yield. Sometimes even the site of a mill which had formerly existed is entered, evidently as a detail of commercial and taxable value. The produce of mills is variously stated,—sometimes in money, sometimes partly in money and partly in grain, and occasionally a revenue arises from the fishery incidental to the mill-stream. The keeper of the mill is a functionary especially indicated in one passage. The custom of paying the miller in kind, that is, with the bran, known as *multura*, survived until a much later period. It is, perhaps, still extant in some parts of the country.

The terms employed to designate Domesday measures of capacity and weight are of the highest interest, but it would demand more space than can be here given for their investigation. They all seem to point to a remote age, when every separate commodity was divided and reckoned by measures peculiar to itself. Thus we have, in addition to the *stike* of eels already mentioned, the *plumba*, the *cuttus*, the *carreta*, and the *fotinel* of lead; the *sextarus* of honey; the *ambra* or *amphora*, the *summa* or seam, and the *mitta* of salt; the *hida*, *carucate*, *fording*, and *virgate* of land; the *arpent* of vineyard; the *hoccus*, the *mensura*, the *libra* or pound, the *ora*; and many terms denoting square and linear measure of land. The moneyers and the shipping interest were not forgotten, and numerous other entries might be selected to show how far had our Domesday forefathers advanced in the paths of constructive and manufacturing arts. Arcadian simplicity was universal, in the church, in the house and home, in the field and forest; it was a battle with the iron hand of nature in the wood and on the plain, and with implements such as we should now deem inferior to their task the indomitable spirit of the Anglo-Saxon rustic cleared untrodden forests, tilled tracts of virgin land, and tamed the country, and thus developed by degrees the arts and methods of the husbandman, the artificer, the surveyor, and the architect which have to-day become so extensively ramified and so elaborately and distinctly subdivided. The mere study of the plough alone, its derivation and signification, its varied form and size, the method of its use (and here we may be faithfully guided by the illuminated MSS. in the Royal and Harley Collections at the British Museum, recently exhibited to the members of the Domesday Commemoration) — the peculiar curvature of the furrow on old arable land as distinguished from the modern furrow geometrically straight,—the number of oxen required to work it profitably, and the regulated amount of their day's work, are all points which may be examined with interest and advantageous result.

NOTES.

M. BEYELER, a Swiss engineer, formerly engaged on the Panama Canal, has recently drawn up, under the title "The Truth about the Panama Canal," a paper which is attracting serious attention. M. Beyeler carries into further detail those facts of which we gave some abstract on the 10th July and the 14th of August last. He gives the cubic contents, as now estimated, of each of the twelve sections into which the site of the Canal is divided, and the quantities actually excavated in each. The total of the estimate is 131 millions, and that of work done 16 millions, of cubic mètres. But to the gross amount have to be added 20 million cubic mètres for auxiliary works and construction of dams, and an estimated outlay of four millions sterling for the great weir at Gamboa. M. Beyeler adds that his figures may be taken as coming down to the present time, as, since the spring of the present year, hardly any work has been executed along the line, "whether the cause be want of workmen, bad weather, or the crisis that appears to have temporarily overtaken the undertaking." M. Charles de Lesseps stated, in March last:—"I am quite sure that for the whole of 1886 the average per month will be over a million cubic mètres, and that at first there were only 100 million cubic mètres to excavate." M. Beyeler states the expenditure to date "for excavations, amounting to 16,000,000 cubic mètres," at 542,516,440 fr.; the cost required for completion at 1,625,000,000 fr., and the interest and burden on shares and obligations, assuming the progress of the work to be at the rate of 7,000,000 cubic mètres per annum, or 1,230,000,000 fr., giving a total of hard upon one hundred and thirty-six millions sterling (3,397,516,440 fr.).

THE accounts of the working of the Grand Trunk Railway of Canada, for the half-year ending June 30, 1886, are highly instructive. The gross receipts for the half-year have been rather more than nine and a half per cent. higher than that of the corresponding period of 1885. But the working expenditure has been increased by less than three-quarters per cent. Otherwise stated, the co-efficient of working cost has been reduced from 76·60 to 70·50 per cent., or in a much higher proportion than the increase of train mileage, which is about 0·9 per cent. As to freight, which forms two-thirds of the income of the company, 13·5 per cent. more money has been earned by a rather reduced amount of train mileage, viz., 4·92 million train miles in 1885, and 4·88 million train miles in 1886. In other words, each train mile in 1886, while run at a fractionally less expense, has earned $4·31, against $3·76 in 1885. On the other hand, the gross earning of the passenger trains has been fractionally less, $4·78 per mile in 1886 against $4·85 per mile in 1885, with an increase of 5 per cent. in mileage. The total capital expended amounts to 50,421,235*l*. The total mileage of owned and leased lines is 2,924 miles. Thus, the gross revenue for the half-year amounts to only 6·2 per cent., and the net revenue to only 1·8 per cent., on gross capital. Still, the movement of the half-year is encouraging.

THE Metropolitan Board of Works deserve the thanks of the millions who throng the streets of London for calling the attention of the Government to the danger of the ever-thickening network of air-stretched wire that is lining the canopy of smoke. Of course, we are behindhand with the United States in taking such a step, which is necessary for the safety of telegraphic communication, in certain very possible cases, as it is for that of the wayfarer. But it will be much if this is set in order without the stimulus of catastrophe. Of the value of the return ordered at the same meeting of the Board it is difficult to speak too highly. It is only to be hoped that it may be published. An official return of the daily quantity of sewage delivered at Barking and at Crossness, showing the daily rainfall and temperature, will in itself be an important statistical document. And when to this is added a return of the stations at which disinfectants were put into the sewers during the summer, and the quantity of chemicals used each day, the information will be yet more useful. It would be well, in order to give full value to the return, to add analyses of the sewage after the attempted disinfection, as well as the cost of labour involved in applying the chemicals.

THAT property belonging to A should be taken by B in respect of a debt owing to him by C is certainly an anomalous state of things. But this is the law. For a landlord may distrain things on his tenant's premises which do not belong to the latter, unless they have been *delivered* on the premises for the purpose of being wrought upon in the way of trade. One would suppose that the manner in which the articles came on the premises was immaterial so long as they were on them to be worked on and did not belong to the tenant. But the erroneous character of this idea will be seen by reference to a single sentence of the judgment of Lord Herschell in the recent case of Clarke *v.* The Millwall Dock Company:—"Looking at the terms of the exception, it is as much a necessary part of it that the goods should be delivered for the purpose of being wrought, worked up, or managed in the way of the trade, as that they should be on the demised premises for those purposes." The subject of the action was a ship which had been built for the plaintiff, and which had therefore not been delivered. We do not doubt the correctness of the judgment of so sound a lawyer as Lord Herschell. But the practical result of the present state of the law might often lead to very ridiculous results. Thus, A may buy a picture which is on B's premises and allowed to remain to be varnished, and he may, on the same day, send another from his house to these premises to be varnished. It is clear that though a week hence both pictures are the undoubted property of A, yet that B's landlord may seize the first one in respect of rent due from him, but not the second. Of course, when the law gets

into this state, the Legislature only can alter it.

IT is extremely satisfactory to note that a universal consensus of opinion has existed for the last week or two as to the steady rise in manufacturing affairs, and especially the iron and steel trades, which are usually the first to feel the ascent and descent of prices, and which may be called the weathercock of the industrial world. Wherever iron and steel are produced comes the same cheering record, not only from England, Wales, and Scotland, but also from the Continental and American markets. From the latter we hear that all kinds of iron and steel continue in very urgent demand, that Bessemer iron is all sold up, and that active preparations are being made to develop fresh iron properties. In Germany the whole of the accumulated stocks have been contracted for up to April next, while in Belgium the market is firm, a good export trade having been secured. In Staffordshire, pig iron is steady, with an advance in most of the brands, the sheet iron trade particularly showing a marked improvement. In North Staffordshire the makers see work in hand for several weeks, several orders having come to hand on Indian railway account. In the Furness district hematite is very firm, large orders being more frequent than small ones. Accompanying these favourable symptoms, the shipbuilders and coal trades are showing equal signs of revival, and with such a good start it is to be hoped that much of the anticipated distress will disappear. If a really good time were to come, it would do more to knock the doctrines of the idle and discontented Socialists on the head, than all the legislation and police supervision.

ACCORDING to some particulars quoted in the "Transactions of the Institution of Civil Engineers" (vol. lxxxvi., p. 9), Professor Poleck has discovered that some timber he had procured, and which was supposed to be winter-felled wood, was, actually, raft-timber, floated down the river, and he has ascertained that timber which has been thus immersed is no longer liable to the attacks of *Merulius lachrymans*, or dry-rot fungus. The water slowly dissolves out the albumen and salts and thus deprives the fungus of the nutriment needful for its development. In confirmation of this it has been found by experiments made in France that if fresh sawdust be buried in damp earth, it will rot away in a few years, whereas sawdust that has been well soaked in water will remain in the ground wholly unchanged. The subject of dry-rot is extensively treated of in the *Gesundheits-Ingenieur*, 1886, pp. 359 and 471; and in the "Proceedings of the Institution of Civil Engineers," vol. lxxx., p. 419.

TO the last number of the "Monuments Grecs," published by the "Association for the Encouragement of Greek Studies in France," M. Héron de Villefosse contributes an interesting paper on the Lapith head recently recognised by Dr. Waldstein as belonging to Metope 6 in the British Museum. The story of the identification is well known, but M. Villefosse adds to this a very ingenious theory as to how and when the head came to be be separated from the Lapith body. It will be remembered that the head was found on the sea at the Piræus. It is much corroded and in the right side bears marks of having been eaten away by sea insects. An expert (M. Gaudry), after examining the head carefully, says that from the character of the marks it must have taken these creatures about two centuries to eat in so far. Two centuries take us back to Louis XIV. and Nointel's embassy in Constantinople, and the time memorable for the Parthenon when Carrey made his famous drawings. From these drawings we know that the head was then its place. If, therefore, it was in its place when Carrey drew, and if it has been two centuries in the water it must have been taken away soon after Carrey left. This brings us close on to Morosini's famous siege and the fatal explosion (1687). M. Villefosse conjectures that the head was either knocked down by the shock or broken off by some soldier who, following Morosini's example, wanted a *souvenir* of the Parthenon. It must have been shipped at the Piræus and by some accident have fallen into the sea, whence it has been secured after two centuries of corrosion.

WE are glad to see that, at last (in the *Bulletin de Correspondance Hellénique*, v., November 1886), the famous Mycenæ sword-blades are worthily reproduced in two exquisitely delicate chromo-lithographs. The sword-blades were facsimiled in 1884, by M. Blavette, in water-colour, and the paintings passed into the possession of M. Albert Dumont. A few days before his death he presented them to the Academy of Inscriptions, and at last, somewhat tardily, they were given to the public. The swords have since been reproduced in black and white,—once in the *Ἀθήναιον*, once in the German *Mittheilungen*,—but as the extraordinary beauty of the colouring was their chief charm, they could up to the present time only be appreciated by the few who could see the originals at Athens. M. Perrot accompanies the plates with a short article. He agrees with the current opinion that the contents of the Mycenæ tombs date about the twelfth or eleventh century B.C. This coincides with the time of the Sidonian supremacy, when Phœnicia was the vassal of Egypt. Hence we need not be surprised that the sword-blades are Egyptian rather than Assyrian in inspiration. M. Perrot thinks that they must be regarded as *armes de luxe*, and were either bought by some Mycænian prince from a Phœnician merchant, or executed at Mycenæ as copies of Phœnician models.

AT the meeting of the Metropolitan Board of Works last week, the Works and General Purposes Committee presented a report which contained some remarkable statements as to the defective sewerage arrangements of an important part of the West End of London. We give the paragraph of the report in its entirety :—

"Your committee on 16th of July last (No. 6) reported on a letter from the Westminster District Board relative to occasional flooding of the basements of houses in certain parts of the district through the alleged insufficient capacity of the main sewer. Your committee stated in the report that they had learned from the Engineer that upon a recent examination it had been found that in the part of the sewer extending southward from Piccadilly to the river there were 152 drains and five local sewers which were untrapped, and that in the sewer north of the relief weir from Piccadilly to Curzon-street, by Half Moon-street, there were twenty-five untrapped drains and six untrapped sewers. Your committee recommended that the attention of the local authorities, the Vestry of St. George, Hanover-square, and the Westminster District Board, should be called to the matter, with the view to steps being taken to have the sewers and drains properly trapped. The matter was, however, referred back to your Committee, and the Engineer was on the same day instructed to report to your Committee as to the efficiency of the new relief sewer. Your Committee have now had before them a report by the Engineer stating that since the flooding in May last he has not heard that there has been any further complaint, and that until a similar storm to that of the 22nd of May takes place he is without the experience necessary to enable him to make a conclusive report as to the efficiency of the new relief sewer. Your Committee, under these circumstances, have again to submit their former recommendation as follows:—'That the attention of the Westminster District Board and the Vestry of St. George, Hanover-square, be called to the fact of there being many untrapped drains and local sewers in the locality referred to, and to the desirability of steps being taken to have them properly trapped.'"

We wonder how many other districts of the metropolis would, if thoroughly examined, reveal a like condition of things to that disclosed in this report? The report was adopted, and the Westminster District Board of Works and the Vestry of St. George, Hanover-square ought not to make any delay in carrying out the necessary works.

A FURTHER report of the same Committee. and one which was also adopted by the Board, deserves all the publicity we can give it :—

"Your Committee have further to report that they have considered the letter from the Vestry of Bermondsey, referred by the Board on the 1st inst. (No. 24), stating that their Inspector of Nuisances had reported that sewer sediment, bought from the Board's contractor, was being used in the materials for the construction of four houses, Nos. 190, 192, 194, and 196, Long-lane, and asking the Board to prevent the sale of such sediment for such a purpose. The Engineer reports that from inquiring into this matter he learns that, without the knowledge of the Board's contractors (Messrs. Williams, Son, & Wallington), one of their carmen sold to a builder named Fairhead, for 4s. 6d., three loads of sand which came out of a sewer, and that the District Surveyor took objection to the sand and refused to allow it to be used. The Engineer has requested the contractors to give their carmen strict orders on no account, and for no consideration, to sell or deliver to builders or others any sand which they may get out of the main sewers, however inoffensive it may look, but 'to cart it away to unobjectionable places' in accordance with the provisions of the contract. Your committee recommend that the vestry be informed to the foregoing effect."

Those indignant people whose knowledge of building matters is usually in inverse ratio to their vehemence, and who, in season and out of season, cry out "Where is the District Surveyor?"—in utter ignorance that that official's duty mainly consists in seeing that new buildings, or alterations to old ones, are carried out in conformity with the structural requirements of the Building Acts,—will be gratified to find that, in this case at any rate, the District Surveyor has shown commendable vigilance. We need not enlarge on the evil results which might ensue to the occupants of dwelling-houses of which the brickwork was put together with mortar partly composed of "sewer-sediment."

THE President of the Institute, with the modesty which is so characteristic of him when making any reference to his own position and work, unduly undervalued himself, in the opinion of some of his hearers, in his opening address on Monday evening. The designer of such buildings as the British and Foreign Bible Society's House, Blackfriars; the new Museum, Bartholomew's Hospital; the Scottish Widows' Fund Offices, Cornhill; Merchant Taylors' School at Charterhouse; the new Corn Exchange, Mark-lane, and other large buildings, can be no mean architect, and he is besides a man of general culture, and has made considerable additions to our knowledge of geology. He is a valued member of the Geological Society, and a co-worker with Professor Prestwich.

SINCE the discovery of the Hermes of Praxiteles everything that can throw light on the vexed question of the restoration of the right hand of the statue is of interest. Dr. H. Heydemann has collected in the last "Hallisches Winckelmanns - Programm" (No. X.) all the monuments of ancient art that relate to the birth and childhood of the god Dionysos; he devotes a special chapter of his monograph to those works which deal with the special moment selected by Praxiteles in the carrying of the child to the nymphs of Nysa. From a careful consideration of the various bronzes, gems, vases, which fall under this head, he comes to the conclusion that all previously suggested restorations, *e.g.*, bunch of grapes, purse, long caduceus, must be rejected. He proposes to place in the right-hand of the statue a short thyrsos, the property and the symbol of the little wine-god. It is quite consonant with the spirit of Greek art to represent the new-born child already carrying his distinguishing attribute. Dr. Heydemann supposes that Hermes, *en route*, has taken the thyrsos from the child, and that the little Dionysos stretches out his hand to reclaim his property. The motive is simple and natural, and, on the whole, we think the suggestion the best that has been offered.

SOME interesting details of important improvements recently made in the construction of retaining walls on the Southern Railway of France are given in *Le Génie*

Civil, vol. ix., p. 145. These walls have all been built on a specially economical plan. They have a sloping wall face, with nearly parallel faces, and are strengthened at the back by triangular counterforts extending out to or beyond the amount of overhang. The space between the counterforts is filled in with dry rubble walling, or with well-punned earth brought up in layers 8 in. thick. In this way a prism is formed behind the face-wall, exerting no thrust, and of which the weight and adhesion of the counterforts increases the stability of the wall in proportion as the batter of the face wall is increased; also the thrust of the soil is thrown against the side faces of the counterforts, and the cost of the masonry is reduced. In fact, as the batter of the face wall is increased, the resultant pressure of the earth is reduced. The necessary increase of the counterforts, and of the backing, is more than counterbalanced by the reduction in thickness of the face wall, so that eventually the thickness of the face-wall might be theoretically reduced to nothing, and serve only for protecting the surface at the back, resembling, in fact, the consolidation of cuttings by transverse buttresses.

IF there is one thing more than another which amazes the intelligent foreigner it is the distance to which London proper stretches out its octopus-grasp in every direction, absorbing all that comes within its reach. West Ham, which has just dissociated itself from London government, by being constituted a corporation, is a striking example of this. Half a century ago it was a straggling village of some five or six thousand inhabitants on the east bank of the Lea and near its mouth; and, as far as the attractiveness of the neighbourhood is concerned, it might have remained so but for the Act of 1854, which placed many salutary and necessary restrictions on the manufactories existing within the metropolis. Their owners naturally sought a retreat where nobody could interfere with them, and found at West Ham just what they wanted,—liberty to make smells and generally pollute the atmosphere, cheap land, and proximity to water carriage. So West Ham increased rapidly and became one of the busiest and dirtiest places in the kingdom, without regularity, without drainage, without lighting or scavenging, and a perfect playground for zymotic diseases. The rapidity of its growth was such that when a Local Board was established in 1856 the population was 27,000, whereas it is now (in round numbers) 200,000. Its rateable value was 79,000*l.*, whereas now it is 700,000*l.*; the inhabited houses were 4,500 in number, and now are about 28,000. The Local Board did its work well, though economically,—a conjunction of virtues that is not always found in Local Boards.

GIGANTIC as are the proportions of modern London, few cities are so well provided with open spaces within its area and its immediate neighbourhood. In this matter the Patres Conscripti have done their work nobly, and deserve well of their fellow citizens, as have also the Ecclesiastical Commissioners, whose generous views have resulted in the acquisition by the City of the Highgate Woods, a sylvan retreat of uncommon beauty, and easily accessible from every part of London. The Kilburn area of thirty acres, which the Commissioners have also presented to the City by arrangement, is as yet only an open space, the uncompromising character of which, those who visited the Agricultural Show of 1880 have good reason to remember, from its impassable morasses and quagmires. This, however, is easily remedied, and there is no reason why Kilburn Park should not become as diversified and agreeable as any other, though, of course, more or less overlooked by dwellings. When we remember, too, the West Ham Park, Epping Forest, Wanstead Flats, Coulsdon Common, and Burnham Beeches, it will be obvious at a glance that the Corporation of London has not been unmindful of its duties, as the trustees for the enormous population around. While enumerating these spacious heritages for the people, we should not forget the no less valuable work done by Lord Brabazon and his association in securing small open spaces as gardens and playgrounds within the most densely inhabited portions of the City, and we may fairly challenge any place in the world to show a finer series of public works.

THE ordinary meetings of the Institution of Civil Engineers, at eight p.m., commence on Tuesday, the 9th of November next, and will be held every Tuesday, with the exception of the 28th December, 1886, the 4th January, 1887, and the 6th March, 1887, to the 24th May, 1887, inclusive. The annual general meeting of corporate members only is fixed for the 7th June, at eight p.m. Supplemental meetings for students of the Inst. C.E. only will be held on the following Fridays, at 7·30 p.m.; November 19th, December 3rd and 17th, 1886, January 7th and 21st, February 4th and 18th, March 4th and 18th, April 1st, 15th, and 29th, 1887. By permission of the Council, the meetings of the Mechanical Engineers will be held at the Institution, at 7·30 p.m., on the 3rd and 4th of February, and on the 19th and 20th of May, 1887; those of the Telegraph Engineers on the second and fourth Thursdays in each month, between November and May, inclusive, at eight p.m.; those of the Meteorological Society on the third Wednesday in each month, between November and June inclusive, at seven p.m.; and the annual meeting of the Iron and Steel Institute on a day in May, hereafter to be determined.

IT is proposed to restore the figure of the lion of St. Mark, which formerly stood over the central balcony on the western front of the Ducal Palace at Venice. Commenting on this proposal, the *Venice News* remarks,—"By all means, but where is the lion? If it exists let it be put back into its place, but there is no doubt that the proposition will resolve itself into one for making a new lion which never stood there, and setting it up in the place once occupied by another. . . . The argument used on the present occasion in support of the proposal is worth noting. 'It not being a question of a work of art in the strict sense of the word, but of decorative work, the expense ought not to be considerable.' So that the exquisite sculpture of the Ducal Palace is not, forsooth, to be called a work of art."

WE understand that a project is on foot to erect what is called a Victoria Jubilee Tower in the rear of the National Gallery, on ground belonging to the Marquis of Salisbury. The tower will be 420 ft. high and 60 ft. across at the base, and is estimated to cost 30,000*l.* The public will be admitted to ascend the tower by a lift placed in the centre of the building, and it is considered that a large revenue may be reckoned upon from the cha e for admission. Mr. W. H. Radford, of Nottingham, is the architect of the building.

PROBABLY most people who have their wits about them are aware that the statement that the drainage of a house has been "thoroughly put in order according to modern sanitary principles" had better be taken *cum grano*,—at least, till a careful inspection has been made. But it is not often that one finds such an amusing example of the simplicity with which drainage improvements may be accepted "by rote," and without the least notion of the why and wherefore of them, as fell under our notice the other day, in a house about which we received the usual conventional assurance as above quoted. True, the rain-spouts and bath-waste had all been duly disconnected and discharged over outside traps; but in the scullery was a sink waste-pipe which it was not thought convenient to carry to a trap outside, across the width of the room. But the pipe was duly and properly "cut off" just above the floor, and beneath it, in the middle of the floor, and of course right inside the house, a "bell-trap" had been placed for it to discharge over; the trap being, of course, in direct connexion with the sewer, and the water in it impregnated with foul odour. The worthy man who did this had obviously learned that it was considered the correct thing to disconnect a waste from the trap; but as to the object of it he was evidently quite in the dark!

LETTER FROM PARIS.

THE Government has done well in granting the Cross of the Legion of Honour to Madame Dieulafoy, the young and spirited consort of the savant who has just given France one of the most noteworthy archæological discoveries of the day,—the remains of the palace of Darius. There are already a certain number of women decorated with the national order as a reward for warlike achievements or acts of humanity, but Madame Dieulafoy is only the second who has received this acknowledgment for success in the world of art,—Mdlle. Rosa Bonheur being her only predecessor. A similar honour has also recently been awarded to M. Lenoir, the sculptor of the statue of Berlioz, of which an illustration has appeared in the *Builder*.

While we are awaiting the opening of the galleries dedicated to the Dieulafoy exhibits, the Louvre inaugurates its new "Salle de l'École Française Moderne"; where all the pictures of the modern French school are now distributed in three galleries on the principal floors, one reserved for the work of the seventeenth century, another for the eighteenth, and the third, the "Salle des États," for the artists of the nineteenth century, among whom Ingres and Delacroix are seen at their best; and the "Marshal Prim" of Henri Regnault seems by no means out of place in this illustrious company.

Another new idea of the Direction du Beaux Arts is far more questionable,—that which proposes, under pretext of economy, to deprive our national palaces of their original character as royal residences, and turn them into State manufactories or Record Offices. Thus, according to the unfortunate idea of M. Turquet, Under-Secretary of the Fine Arts Department, the palace of Fontainebleau, so rich in historic memories, is to be despoiled of its furniture to receive a mass of papers and heterogeneous literature now encumbering the attics of the Bibliothèque National, while the *ateliers* of Gobelins and Beauvais are to be installed at Compiègne; and even the Château de Pau, the nursery of Henri IV., is not to escape this administrative devastation, which is playing havoc with the most interesting remains of national history. Lucky that Versailles is spared, and not turned into a prison or a snuff manufactory. The Governmental economies fortunately do not go as far as that, and the abode of Louis XIV. is to become, it appears, the museum for all the furniture "lifted" from other palaces.

We protest strongly against these "utilisations" of buildings which are a heritage from the past. The actual state of the Château of Villars-Cotterets might serve as a warning to M. Turquet, to whom M. Bœswilwald, the "Inspecteur-Général des Monuments Historiques," has recently pointed out the devastation made here, and first commented on in these columns;* a representation which has at least led to some effort being made to preserve, as far as it is still possible, what is left of this ancient abode of Francis I. These observations apply equally, for the same reasons, to the sale of the Crown jewelry, which has been the subject of discussion in the Senate. On national grounds alone the Government should preserve intact this collection, one of the richest and most remarkable in the world, the sale of which at the present moment would realise nothing commensurate with its intrinsic value.

By a curious anomaly, while these things are passing in the Department of Fine Arts, the Minister of War appears as the artists' friend. It is to General Boulanger that the painters might say, in the words of Horace:—

> "Mæcenas atavis edite regibus,
> O et præsidium et dulce decus meum!"

We have already spoken of the barrack decorations projected by the Minister of War. It is now proposed to offer to each regiment a painting of some one of its achievements since its creation,—a fair provision for painters for some years to come. Ten artists are already selected to enter on the task. M. Protais is to represent an African scene, the "Chasseurs à Pied," whom no one is better acquainted with. M. Henri Dupray will paint "The 14th

* *Builder*, July 25th, 1885, "The Vicissitudes of a Royal Château in France."

Dragoons at Weerts"; M. Aimé Morot, "The 3rd Cuirassiers at Reischoffen"; M. Berne Bellecourt, "The 1st Regiment of Engineers in the Crimea"; M. Le Blant, "The 9th of the Line at Moscow"; M. Arus, "The 11th Artillery at Solferino"; M. Delahaye, "The 12th Hussars at Marengo"; M. Renard, "The Death of the Colonel of Sapeurs Pompiers, —M. Froidevaux,—at the burning of the Rue de Charonne"; and, lastly, M. J. Lewis Broun will record the heroic conduct of "The 12th Mounted Chasseurs at Hohenlinden." All these pictures, most of which will probably figure in the next *Salon*, will be reproduced in photogravure, to form a kind of *livre d'or* of the Army. The idea has been much applauded, as may be supposed, in artistic circles, and this new departure in official painting will at least have the advantage of drawing us a little out of that conventional "Classic" painting commenced in the École des Beaux Arts, and continued at Rome, which is the parent of a great deal of hopelessly mediocre art.

The Exhibition of the "Envois de Rome," which we have been to see in the Hôtel on the Quai Malaquais, does not tend to re-assure one in this respect, though we must add that its deficiencies are chiefly illustrated in painting. The sculpture is much better, and the architecture, which does not unfortunately interest the public so much, is of a very high order.

The Government has nominated a Committee of Management and Finance for the Universal Exhibition, composed of forty-three members, apparently because there are 43 millions (francs) embarked in the enterprise. This committee will have first to examine the plans and estimates; all questions of expenditure will be submitted to it, and its judgment on them will be final. At the present moment, the most fantastic rumours are circulated as to what passes in this committee, which has already held two meetings. We are in a position to say that all the details given recently in Paris papers are incorrect, and we shall probably be able to give shortly the actual plan as submitted by M. Alphand, and which has only just been definitely settled. The famous tower project of M. Eiffel, we may say at once, seems to be definitely adopted; at all events, a modification as to its position has been agreed upon. Instead of standing in the centre of the Champ du Mars, it will be built at its entrance, at the end of the Pont de Jena; two of its enormous piers will be founded in the garden of the Champ du Mars, which the Municipal Council gives up for the purpose, under the condition that after twenty years the Municipality is to become the owner of this unwieldy monument.

The number of public works now going on, or just about to be undertaken, is a sign that the times are mending; and the most important of all, the Metropolitan Railway, is at this moment under the consideration of a Parliamentary Committee. According to the project as recently modified by the Ministry of Public Works, the complete system (a plan of which we have published) will comprehend a length of 47 kilomètres, 839 mètres; the portion definitely settled on, 35 kilomètres, 860 mètres. This latter portion includes rather more than 6 kilomètres in open cuttings, over 20 in tunnels, and 9 on viaducts; and its cost is estimated at 285 million francs, in place of the 239 of the project as at first started.

The excavations on the site of the arena of the ancient Lutetia, in furtherance of which the Municipality voted a considerable sum at the outset for the purchase of property on the site, have turned out somewhat disappointing, at least in an artistic sense. Nevertheless, since the operations have been undertaken, there is a kind of necessity to come honourably out of the affair, to complete the work, and found on the site the projected "Musée des Arênes," in the middle of a square, the plan of which is prepared, and which will not be without its picturesque attractions. After having already given 200,000 francs to the work, the Council can hardly refuse an additional 50,000, necessary to complete the restoration so precious in the eyes of archæologists, and which will, besides, give that portion of the left bank a new public promenade.

A word as to the magnificent gift of the Duc d'Aumale to the Institut. Thanks to his really royal munificence, the domain of Chantilly and the incomparable château, which Charles Yriarte described so ably in these columns, with its rich historic and artistic collections, its celebrated library and numerous works in sculpture, has become the property of France. The estate represents a capital of 29 to 30 millions of francs, which the Institut is to administer with a view to further increasing the collection of *chefs d'œuvre*, which, in itself, already represents a value of at least 15 millions. The bequest may be considered one of the most true acts of patriotism of the kind of which we have any record.

M. Gaston Roullet, a marine painter, who has returned from a long excursion to Tonkin and Annam, is at present exhibiting at the Galerie Georges Petit, Rue de Sèze, a great number of water-colours and paintings, equally interesting in an ethnographic and an artistic sense. M. Roullet has studied with great care scenes little known to landscape-painters, and his collection, the three most important works in which have been purchased by the State, is at once varied and curious, and is a good commencement of the series of private exhibitions which take place every winter in Paris.

Each month brings its losses in the world of art. We have on this occasion to record the death of M. Ernest Eugene Hiolle, a sculptor of great talent, who has died at the age of fifty-two, just as he had received the commission to adorn the new Sorbonne with a statue in alto-relief symbolising "Philosophy." Hiolle was born at Valenciennes in 1834. He was a pupil of Jouffroy and of Grandfils. He obtained the Prix de Rome in 1852, and medals at the *Salons* of 1867, 1869, and 1870, two medals of honour in 1870 and 1878, and the Cross of the Legion of Honour in 1873. Among his most remarkable works may be mentioned the commemorative monument, erected by the town of Cambrai, to soldiers killed during the war, the busts of Chenavard and of Viollet-le-Duc, and the statue of General Foy intended for the town of Ham. There is talk of appointing M. Longepied, the author of the group "Immortalité," which was illustrated in our pages, his successor in the work for the Sorbonne.

We should not omit to mention an interesting exhibition of stained glass, organised by M. Chas. Champigneulle, who has done so much to give new life and vigour to the art of glass-painting in its modern application. We have noted with pleasure, at this exhibition, two works already known to our readers, the "Fontaine d'Amour," and the "Retour d'Alsace Lorraine à la France." Besides a great number of cartoons and of windows executed for public buildings and private mansions, this exhibition contains a piece of stained glass intended for the Abbey Church of St. Vincent, at Metz, which measures no less than 90 square mètres. The subject of this portion is the Resurrection. We notice also a window, representing the Life of Christ, in the style of the Louis XIII. period, executed after tracings taken from the Cathedral of Bourges, and a very fine window, in the same style, executed for the nave of Notre Dame at Paris.

PROGRESS OF THE WORKS AT ST. BARTHOLOMEW'S CHURCH, SMITHFIELD.

On Tuesday last, November 2nd, the Executive Committee met to inspect the progress of the restorations and reparations in this ancient church. The fringe factory which overhung the altar has been removed: a new altar, the gift of Miss Overbury, is in the course of erection, and new altar-steps, and a marble and mosaic pavement in the apse have been given by the patron, the Rev. J. P. Phillips, in memory of the late rector, the Rev. J. Abbiss. The position of this altar has been fixed by the new sanctuary arch, which for this purpose has been taken as the chord of the apse. A new lectern has also been provided. It is the gift of Mrs. J. H. Evans, in memory of her husband. The apse itself has been completed according to the plan described in our columns at the time of its adoption. This work, which has been provided for by the patron, is very effective, and represents in all probability the original appearance of the east end of the church. The details are all derived from existing details, which are abundant in the ancient parts of the fabric. The discovery of the tracery of the great east window is an interesting feature of the progress of the restorations. Portions of the arcading of the original Norman apse are also found, many of the stones of which still retain their colour, and some of them have been reinserted in the centre arch of the new arcade. The entire church has been re-roofed with oak to keep out the weather; only the principal beams, which are of massive dimensions, proved on examination to be sufficiently sound to warrant their being retained. The remains of the Lady-chapel and of the crypt forming parts of the fringe factory have been secured against further dilapidation until the committee determine to what uses these parts of the church shall be applied. Mr. Aston Webb, the architect, taking advantage of the fact that the edifice, as it now stands, is the choir only of the ancient priory church, is erecting clergy choir stalls at the west end, this being the position originally occupied by the canons. Over these the organ, recently purchased from St. Stephen's Church, Walbrook, is being erected. Schemes for improving the arrangements for warming the church, and for opening a doorway at the west end of the south aisle, in place of the present west door, were sanctioned last Tuesday, and it was hoped that towards the end of the present month a day might be fixed for the ceremony of re-opening the church for divine service. The seats for the congregation will not be placed as heretofore facing the east end, but facing north and south, after the usual manner of arranging seats in cathedral choirs. The committee have still a heavy work before them. They desire to clear off the debts, which amount to upwards of 5,000*l*., on account of several of the works which we have described. They also wish to remove the blacksmith's forge and dwelling-house from the north transept. The forge is now held by four members of the committee, at the disposal of the committee for 1,125*l*. As a portion only of the premises will be required by the architect's plans, the remainder could be sold or exchanged for the dwelling-house which will be required for the restoration. Being charity property the consent of the Charity Commissioners to dispose of the dwelling-house will be necessary. The removal of the boys' school from the triforium will enable the arches to be opened out at a merely nominal expense. To remove the vestry, which now blocks up the south transept, is a very necessary work; the mouldings of the great arch are hidden, and the canvas-covered hoarding is a great disfigurement. The only remaining Norman arch and arcade of the triforium of the transepts are entirely hidden, the arch being at present filled by the vestry fireplace. The light which this transept window would afford is much needed in the church, and a new vestry could conveniently be provided elsewhere. It is proposed to build shallow transepts only, both north and south, but the construction of these now becomes a very urgent matter, as the architect reports that the great arches of the crossing have dropped considerably, owing to the destruction of the original transepts.

FIRE AND DANGEROUS PARTY WALLS.

Many Londoners have to live in houses separated from each other by a wall which they suppose to be so solid and massive as to be a guarantee that their neighbours can do them no harm. They think, too, that except for perhaps some temporary alarm, they may sit in security while their neighbour's house is burned out. They are, for the most part, happily ignorant that the wall is honeycombed with flues; they see the smoke go up, and they think that somehow or other it finds its way safely to the chimney-pots. In most houses there are the projecting chimney-breasts, but in many there are none; and the party-wall runs through in an unbroken straight line. People are conscious of flues, perhaps, when the sweep (!), at an unearthly hour, begins to push up his broom from below. Gradually it passes the bedroom, and then there is a series of rushing noises and rattling noises as detached pieces of pargetting fall off; but when the sweep goes off, they fancy perfect security reigns. It may surprise them to know that sweeping knocks off bad pargetting, and leaves the bricks exposed, and these bricks are sometimes not laid so carefully as they ought to be by the working bricklayer, and that open joints, putlog holes, timbers, and lead may be sources of danger of the most insidious kind. Occasionally smells are noticed, and then die away, until at last the much-enduring woodwork gets so heated that a floor is ignited where contiguous to the bad flue, especially if it gets overheated by a collection of soot. Recently, two cases of ignition by this cause have occurred at

Fig. 14.

Fig. 17.

Fig. 18.

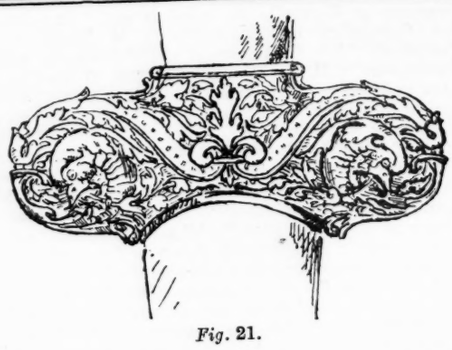


Fig. 21.

Fig. 19.

Fig. 15.

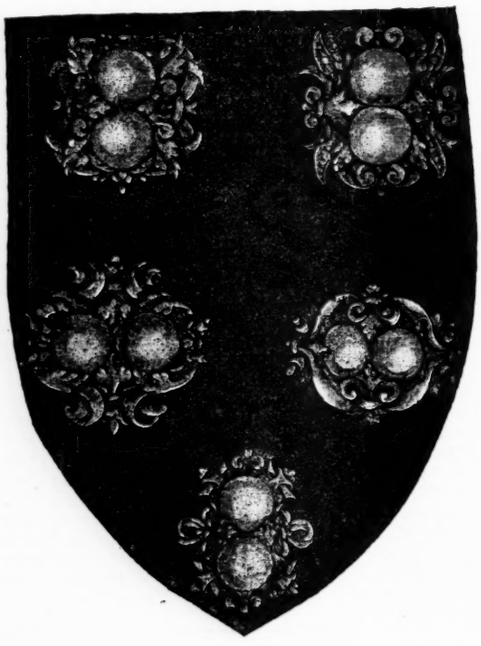


Fig. 13.

Fig. 23.

Fig. 20.

Fig. 22.

Nos. 1 and 2, Connaught-place, the residences of Mr. Beresford-Hope and of Lord Randolph Churchill, M.P., respectively. When Mr. R. H. Carpenter examined the houses he found that the first fire was caused by ties of *fir covered with lead* (!) *passing each side of the flue*, with the object apparently of tieing in the front to the party wall. These ties had ignited, and there being nothing between the burning flue and the library bookcases except this tie 4 in. wide, the result may be imagined. Providentially, this ignition took place in the daytime, and Mr. Beresford-Hope's servants quickly extinguished it. A few weeks later the smell of fire was noticed for many hours, and was traced by the builder sent for to the lead flat over the offices next Hyde Park. It was extinguished easily, as the lead had kept the smouldering red-hot timbers from bursting into flame; and the house was again saved. On examination, it was found that the horizontal flues were so badly built that in one place a portion of a brick had been knocked out by a sweep, and thus direct communication was opened between the flue and the wood trimmer, 4 in. from it. The result was not surprising. Here, again, timber and lead were found to be introduced into the flues, and the pargetting had disappeared.

Such bad floors may have been safe in the old times of open ranges, just as Mediæval buildings still exist, with beams built into their flues, in the days of *wood* fires; but now that kitcheners and improved ranges are used, the draught, and consequent heat, is so much greater, that the weak points in our flues are found out. The Building Act, of course, forbids such contiguity of wood and flues, but many London houses were built before its enactment, and many houses even now, with all the care taken by the District Surveyors, are far from perfect.

Mr. Beresford-Hope, under his architect's directions, has had the wall-face of all his flues cut out, and the pargetting renewed, and all open joints filled in solidly, the wood cut out when running into the flues and new stacks of external flues have been built for the office-flues of both Nos. 1 and 2, Connaught-place, so as to keep the heat from the ranges, &c., out of the thin (18 in.) party-wall, and away from the floors and other woodwork. At the same time, the very dangerous horizontal flues of No. 2 have been entirely rebuilt in a thoroughly solid manner.

It may be added that the houses in Connaught-place were erected some eighty years ago, and were the first built of that long line of houses facing Hyde Park.

HANS HOLBEIN'S DECORATIVE WORK.*

Several of the mounts are devoted exclusively to designs for jewellery. In fig. 13 there are five different designs for setting two pearls. Fig. 14 is an elaborate pendant for sapphires and pearls; fig. 15, a pleasantly-devised brooch, with scrolls and good conventional leaves supporting jewels. Fig. 16, an elaborate and very finely

Fig. 16.

designed bit of Renaissance work, set with large stones, probably intended for a bracelet. Turning to "another class of goods," figures 17 and 18 are charming little pieces of gold work, which, unless it is an anachronism to say so, may have served for the terminals to fob-ribbons. In fig. 19 are five designs for figures, probably part of the detail of some loving-cup.

In fig. 20, a magnificent jewelled cup, the designer had more scope for the free play of his fancy. All the detail is worked out with scrupulous care, the arabesque chasing being especially fine. We have reserved what are, perhaps, the choicest specimens of the work till the last; they are a series of dagger-hilts and guards, from which we have selected two very beautiful ones (figures 21 and 22) and a magnificently embossed dagger in sheath (fig. 23). The first of these is noticeable for the elaborateness of the design and the fidelity with which the lines of construction are followed by the chief feature of the ornament; the second is noticeable for its simplicity, the work on the guard being especially fine; and the third is remarkable as well for the graceful lines of construction as for the wealth of ornament which is lavished upon it.

There are many more designs in this remarkable collection to which we should like to have drawn our readers' attention, but our space as well as our stock of superlatives is exhausted. Our own appreciation of them we confess to be of the highest, and, if we may judge by his words and his deeds, so also was his royal master's. Of his deeds there is sufficient witness in the multitude of designs which Holbein made for him, and of which the collection in the British Museum is clearly but a very small sample; of his words we close this article with the well-known ones:—"I tell you, my lord, that out of seven peasants I can, if I please any day, make seven earls; but out of seven earls, I could not make one such artist as Hans Holbein."

* See p. 620, *ante*.

THE PRESIDENT'S ADDRESS:

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The following is the address delivered by the President of the Institute, Mr. E. I'Anson, F.G.S.,* on Monday evening last:—

Gentlemen,—It is my duty this evening, when presiding for the first time at the opening meeting of a new session, to address you, not only on the subject of the affairs of the body corporate of which we are members, but also in respect of matters which interest generally all British architects throughout the empire. I cannot, however, hope in any remarks I may make to impress you in the same fashion or with the same weight of argument and personal quality as the majority of my predecessors in this chair have succeeded in doing. I am simply a man who for many years has sat as a member of your Council and worked to the best of his ability for the welfare of the Institute, with the hope of rising in the position of an ordinary member of Council to attain that of a Vice-President, and then that of President; and, gentlemen, I thank you, with all my heart, for having permitted and having assisted me to gratify my expectations and desires in this respect. For if, as I believe, men work best who work with some ulterior object,—provided, of course, that it be an honourable one, as all the work of this Institute is,—it is natural to conceive that a great incentive to such work lies in the assurance that it will be acknowledged by the members and recompensed by advancement to honours which it is within their power to confer; and I venture to think that there is no man who takes an interest in this Institute who would not esteem it an ample reward for any labours he may have undergone in its behalf, to be placed by his compeers in the first rank, and at the head of the noble profession to which he belongs.

It cannot, I think, be questioned that during the last ten years, a great increase of our members, of our general prosperity, and of our legitimate influence, has taken place; and I can see nothing, when looking back over a few months, or looking forward, as I may be excused for doing, through the term of my office, which has impaired, or is likely to impair, the comparative success already achieved. The absorbing work of the past Session lay in the preparation of a draft Charter, partly as a supplement to the one we possess, and for the grant of which we proposed to petition Her Majesty in Council. This has been done, and it has been announced that a Committee of the Lords of the Privy Council will take our petition into consideration on Wednesday next. The draft in question occupied many months of careful thought, both by your Council and by the general body of members; and, if I may express a personal opinion, the draft includes an enlargement of functions and a series of progressive developments necessitated by the ever-changing conditions of existence, which, if granted to us and duly carried out, will conduce to the lasting and best interests, not only of the body corporate but also of the profession of British architects; for in all that we carry out, or hope to carry out, we must remember that the two,—the Institute and the Profession,—are more than allied; they are one and the same force, inseparable and indistinguishable one from the other. Moreover, our petition, which prays for the grant of powers to further professional education, and, among other things, to impose an Examination test, has raised the hopes and aroused the sympathies of our brethren not in the mother country alone, but also in Canada, Australia, New Zealand, Cape Colony, and many other smaller though not less valued sections of the British Empire.

During the consideration of the Supplemental Charter, a happy proposal was made by one of our senior members, intended by him to act in direct harmony with the accepted movement indicated by the terms of that draft. It was to organise, for what the original Charter calls the advancement of architecture, four Departmental Committees, to be appointed by the general body of members, and each to have its own honorary officers, and its own departmental action. This important step, which, in my opinion, is quite in the right direction if only kept within certain limits, was considered by a Special Committee, whose report enabled the new Standing Committees to be appointed at our last annual meeting, namely, one for art, one for literature, one for practice, and one for science. These quasi-independent committees are now well at work, and when I qualify approval of the step thus taken, by hinting, as I have just done, at the limits necessary to their action, I mean simply to extol the wisdom shown by the general body in ordaining that such committees should report to your Council only, and that no public action should be taken by any one of them, or any combination of them, except through your Council.

Another step, which I think is fraught with more possibilities of accident than is the former,—a step towards the professional federation of architects,—has been taken by a special committee, at whose meetings I have presided, and where I have had opportunities of hearing the opinions on the subject of the several societies in Glasgow, Liverpool, Manchester, Leeds, Leicester, Nottingham, and Bristol, as well as of individual members from various parts of the country. They have led me to believe that the desire for federation, or, in other words, systematic organisation, is stronger and more pronounced in the provinces than it is in London, and I know that this desire is felt and expressed in Australia and New Zealand, countries which, during the lifetime of living men of forty, have grown into the possession of vast cities, containing public and private buildings which even this mighty metropolis might well be proud to see included within its area. Our next meeting takes place to-morrow, when we are to discuss as a whole a series of tentative propositions, put together from time to time, after much consideration during former meetings, which propositions have been in the hands of every member of the Special Committee since the end of August last. That there should be difficulty in settling the conditions under which such organisation can be carried out is, I think, easy to understand. But there are principles which may be established as a basis, not the least of which are the desirability of maintaining uniformity of practice, the necessity of examinations, and a constant interchange of communications relating to the art, science, and profession of architecture. When I tell you that all these things, with many others incidental thereto, are being considered, and by men who do not hesitate, as the accredited representatives of local societies, to make repeated journeys from distant and important centres of activity, expressly to take part with their metropolitan brethren in the consideration of the subject, you will, I think, be disposed to await, not impatiently, the Committee's Report, which cannot now be long delayed.

The closing meeting of the past session was one of a highly gratifying character, as much to the members generally as to myself. The presentation of the Royal Gold Medal was witnessed by distinguished members of our body from America and France, attracted by the presence of Monsieur Garnier, whose name has long been favourably known to us as the architect of the Paris Opera House. Many of us have admired its magnificent exterior, its vast and sumptuous halls, and their approaches; but we had not until then had its accomplished

* No. 2 of the Institute's *Journal of Proceedings* for the current Session says that Mr. I'Anson, whose first year of office as President commenced in May last, is the senior Fellow of the Institute, having been elected in 1840. Next to him come Mr. David Brandon, F.S.A., Past Vice-President, elected a Fellow in the same year, and an Associate in 1839; but Mr. I'Anson, who was never an Associate, is not the oldest living member, for Mr. George Godwin, F.R.S. (Past Vice-President and Royal Gold Medallist), elected a Fellow in 1841, entered the then limited ranks of the Associates in 1836.

architect bodily with us. We knew his work, we saw and welcomed him personally amongst us, and there was a reality and a vitality in the meeting which gave it unusual interest.

That, too, was the evening on which the medals and prizes annually awarded by this Institute were distributed, and as I had previously assisted at a similar distribution of prizes in Paris, I could hardly fail to note the difference between an important annual event as it is carried out in the two countries.

In Paris the annual distribution of prizes is held in the handsome theatre of the École des Beaux-Arts, filled by friends of the prizeholders, who testify by their applause to the interest they take as the various prizes are distributed; and an important officer of State presides. The Hémicycle, which forms the background, is decorated with one of the finest of modern frescos, painted by Paul Delaroche. One special feature of the meeting, which was very noteworthy, also attracted me. Prizes were not only distributed to students in architecture, but others were also given to master-artificers and to foremen of works, whose skill as workmen and whose general good conduct had merited such distinction. Many of this latter class of men were veterans, and, in their sphere, of wide reputation; and the cordial enthusiasm with which they were greeted whilst receiving their prizes formed a scene of peculiar interest to an Englishman. Again, at the close of the proceedings, the Société Centrale des Architectes invited every prizeman,—architect, master-artificer, and contre-maître,—to join the members' dinner, which was provided in one of the magnificent rooms of the Hôtel Continental, and which it was my good fortune to attend. Whether we could do the same thing here I will not stop to inquire; but certainly such a public and solemn distribution of honours must promote an enthusiasm which cannot but tend to incite all student-workers, both of manual and of mental capacity, to attain distinction in their career, and must, moreover, confer exceptional happiness on a large number of meritorious artisans, who, at different social levels are labouring with us, and without whose intelligent co-operation the work which the architect designs cannot be properly realised.

Amongst the events which have occurred since the last Presidential address, I may record with much satisfaction that one of our former Presidents, Horace Jones, has received the honour of knighthood. The Council had, prior to the recess, the pleasure of formally congratulating him, and we may congratulate ourselves, gentlemen, that this honour has been awarded to him as a public recognition of the many years of service he has devoted to carrying out the work of the City of London; having erected during his years of office the spacious and excellent markets the City now possesses in Billingsgate, Smithfield, and Leadenhall; having re-roofed the Guildhall, built a library, and a Hall of Assembly for the Common Council, besides other works of importance. These are all great municipal buildings, but he has also done work which does not fall to the lot of most architects: namely, the onerous task of acquiring the costly sites on which these large buildings stand, and of settling, I believe, in the most satisfactory manner, the compensations which were paid. Such work is always more or less contentious, yet it has been accomplished by Sir Horace Jones with an urbanity and a success,—though he may not, and, no doubt, did not, concur in every owner's estimate of the property acquired,—which go to prove that he did, at all events, satisfy the claimants that they were considerately and kindly dealt with.

But if we have cause to congratulate ourselves on some of the events of the last session, there have been numerous losses by death in almost all our classes of members which arouse an opposite sentiment. The death of Mr. James Fergusson, a Past Vice-President, at the age of 78, was a loss all the more felt because up to within a month of his death he was busy on our committees, and actively interested in the work of the Institute. We have also lost Mr. J. H. Good, an Associate as early as 1840, and a Fellow in 1847, who was a life member, and who, latterly, having relinquished practice, occupied himself very regularly with the affairs of the Architects' Benevolent Society. Another life member, elected a Fellow in 1861, and an Associate in 1849, Mr. R. Kyrke Penson, has recently died at the age of 70. He held several appointments in Carmarthenshire and Cardiganshire, was a justice of the peace, and the architect of a large number of churches, residences, schools, bridges, and other works, among which I will mention the new church of St. Mark at Wrexham, and Dynevor Castle. Mr. Edward Hughes, of Huddersfield, elected an Associate in 1863 and a Fellow in 1878, who has bequeathed to our library some volumes of the well-known "Spring Gardens Sketch Book," and Mr. Sancton Wood, who has left a legacy of 100*l.* to the Architects' Benevolent Society, are both deceased. The latter, who was elected an Associate in 1841, and a Fellow in 1847, had been the District Surveyor for St. Luke's, Chelsea, for twenty years, and he was a member of the Board of Examiners appointed by the Institute under the terms of the Metropolitan Building Act; his later years were much employed in arbitrations, but he will be always remembered as the architect of several of the early termini and local railway stations. He designed those on the Eastern Counties Railway, now the Great Eastern, including the old terminus at Shoreditch, and he was the architect of the various stations between Dublin and Cork. Another Fellow, elected in 1880, Mr. Thomas Goodchild, whose practice lay at Teddington and its neighbourhood, died last December. From among our Associates we have lost Mr. C. B. Thurston, a Bachelor of Arts, and a Fellow of the Society of Antiquaries, who was elected a member of this body in 1851; also Mr. George Borer, of the firm of Messrs. Borer & Dobb, and Mr. George Smith, of Chester; also Mr. A. T. Ellison, elected in 1885, and Mr. Lionel T. Waller, elected in 1884, the two last having passed the Obligatory Examination in Architecture. Four Hon. Associates are deceased, namely, the Duke of Abercorn, K.G., the well-remembered Viceroy of Ireland; Mr. E. E. Antrobus, the genial Hon. Secretary to the Art Union of London; Colonel Morant, R.E., who went to Madras as the Officiating Government Architect while our Fellow, Mr. Chisholm, was at home on leave; and the Rev. Benjamin Webb, M.A., a Fellow of the Society of Antiquaries, the Vicar of St. Andrew's, Wells-street, and a Prebendary of St. Paul's. Mr. Webb, as many of my audience may remember, took an active part with Mr. Beresford Hope in founding the Cambridge Camden Society, and he was editor of the *Ecclesiologist*, and the Ecclesiological Society's publications.

Outside the ranks of this Institute there has passed away, somewhat suddenly, an architect of great ability, who, at an earlier period of his career, executed works which have had considerable influence upon the arts of design in this country, namely, Mr. E. W. Godwin, F.S.A. There has also succumbed, at the age of sixty-eight, a practitioner of some note, a man of high character, Mr. John Prichard, of Llandaff. A pupil of Augustus Welby Pugin, and the principal author of the new portions of Llandaff Cathedral, he will be justly remembered as the architect of a celebrated residence in Warwickshire,—I mean Eatington Hall,—which twenty odd years ago excited much comment, and deserved approbation.

We have further learned, since my predecessor in this chair addressed you, that three Corresponding Members, located respectively in Athens, France, and the United States, are deceased. The first, Lysandre Kaftangioglou, a friend of the late Professor Donaldson, was originally the director of the École des Beaux-Arts at Athens, and an hon. member of the Academy of St. Luc at Rome, and of those of Milan, Bologna, Parma, Madrid, Lisbon, Copenhagen, and Vienna. He made communications upon archæological subjects during the earlier years of the Institute, having been elected in 1857, and he died in October of last year. The second, Mathieu-Prosper Morey, elected in 1855, was architect to the City of Nancy, and a Corresponding Member of the Académie des Beaux-Arts (Institut de France). The third, Mr. Henry Hobson Richardson, who, though elected a member, did not live long enough to enable us to insert his name in our distinguished list of Corresponding Members, was born in 1838 in Louisiana, one of the Southern States of America. He appears to have graduated at Harvard College in 1859, and soon afterwards left for Europe, to enter the Paris École des Beaux-Arts as a student. While there he heard that his parents had been reduced to penury in consequence of the Civil War then raging, and being thus forced to earn his own living he obtained employment in Paris. Some seven years after, he returned to New York and started there in business. Mr. Richardson subsequently went to Boston, and from the Boston professional journal (the *American Architect*) I have cut the following note:—

"To him his work was everything. He could talk well of a hundred other things, and did so when the occasion seemed to require it, but he had evidently not much heart in them, and was always glad to return to the one theme of which he was never tired, and from which no pain or fatigue could turn away his thoughts. It was impossible to be long near him without sharing to some extent in his enthusiasm, and the high ideal of their work, which so honourably distinguishes the younger generation of our architects, is undoubtedly due in great part to the direct or indirect influence of his example. In his death American architecture suffers an incalculable bereavement. Few of us perhaps, and least of all himself, have realised how conspicuous he was in the profession in this country, yet from Maine to Texas there is probably not an office in which Mr. Richardson's work was not an inexhaustible subject of discussion and source of inspiration. It will be harder than we think to accustom ourselves to go without this, but if we would do as he would wish to have us, let us, as the recollection of our loss recurs to us, resolve to emulate his courage and enthusiasm, and rejoice that his physical sufferings should to the end have been consoled by the affection which he cared for beyond all other things.

Those who were present at an exhibition of photographs of the late Mr. Richardson's executed works, held in this room a few months ago, while he was yet alive, will not readily forget the impression they made upon the architects of the "old country." We thereby learned that a school, so to speak, had arisen within the United States, a school of much artistic power, which bade fair in due season to attain position and ultimate eminence in the architectural records of the old and new worlds; and looking back now, as I can do, over half a century of practice as an architect and surveyor, I venture to lay some stress on this advent of our American kinsmen to a place in the great Republic of Arts. I hope that they have laid for it a solid and substantial foundation of science, without which no architecture, however beautiful in appearance, can ever flourish or reach perfection.

When I was a young man, my feelings used to induce me to think that the only really important part of architecture was art, and that artistic power was wholly an instinct; that, in fact, the highest quality of an architect was to be an artist. But, depend upon it, art-power does not suffice to make an architect. The grandest effects in architecture have depended quite as much upon constructive as upon artistic knowledge. The composition of a plan, its adaptation to the purpose for which the building is intended, is rather a mental than a manual exercise, and, though artistic feeling may undoubtedly enhance the effects to be obtained by thoughtful arrangement, it is study and practice and experience that combine to render an interior workable and fit for every-day use. I am, therefore, an advocate for the systematic teaching of art, as far as it can be taught, and of all those sciences pertaining to the theory and practice of building construction. The traditional custom of apprenticing young men to a practitioner, whereby they can closely follow and assist in the work done in an architect's office, is, I still think, a right system, advantageous to the apprentice if he be worth anything at all; but it is far, very far, from being enough, and the more often this is emphasised by those who occupy the position I have the honour for a time to hold, the better it will be for the profession, at least until the subject of architectural education is better understood than it is at present, or until people cease to repeat the formula that architects, like French cooks, must be born and cannot be made. Surely the old and true saying that the three things necessary to make a successful man in any profession are nature, study, and practice, may be safely applied to our own, and surely two out of these three items are distinctly within the area of teachable things. Indeed, they require a great deal of teaching, and any attempt to teach, if it is to be successful, must be tested by constant examination.

Happily this Institute agreed, some ten years ago, to make the passing of an Examination a condition precedent to admission as a candidate for the Associateship, and the probability of a similar step being taken as regards the Fellowship, even now foreshadowed, may in a few years become a reality. I feel that it is an absolute obligation on the senior members of the Institute to personally bring this matter to the notice of those in their employ, whether as assistants or pupils. I venture even to recommend the insertion in the indentures of every articled pupil that he should engage in due

course to present himself before our Board of Examiners, and pass, or, at least, try to pass, the Examination in Architecture.

Every pupil who has devoted himself in a reasonable manner to his studies, and whose professional education has received due care from the master to whom he has been articled, should be able, within a year after he is out of his time, to pass that Examination; for in its present range it comprises merely the minimum amount of knowledge which a young professional man should early possess. The mental exercise, both before and during the examination, is proved to have been of the highest value to many. In their preparation for it candidates are compelled to review and consolidate the information acquired by them in previous years. The Examination itself serves to indicate their weakness in particular branches of knowledge, and the necessity of extending or continuing their studies thenceforth on the sound basis which their preparation for the Examination will have laid becomes apparent to them. But it is too much to expect that young men who see their predecessors successful in practice without having undergone what some may call the drudgery of this educational course, will voluntarily subject themselves to such a test, at least in large numbers; and it is only by the direct personal influence of masters and employers over their pupils and clerks that the advantages derived from passing the examination can be brought home to young men.

Nevertheless it cannot be too clearly or too quickly understood that the only and proper gate for admission into the recognised ranks of the profession is the Examination test, and all young students proposing to become architects, should prepare themselves by study and application to undergo it. The inducements to do so are two-fold, namely the immeasurable personal advantage, and the absolute professional necessity.

However great, though, may be our exertions in this respect, both corporate and individual, they must be frustrated for some time to come by the lamentable deficiency, in too many cases, of early education among those who seek to enter, and who do enter, our profession. The fact has not escaped the attention of the Special Education Committee now sitting,—a committee which includes three representatives appointed by the Architectural Association,—and I trust that the report which we may expect to receive ere long from this Committee will enable you, gentlemen, to see your way to devising some important measures for the furtherance of professional education, in conjunction with the Committee and Members of the Architectural Association. The excellence of the educational work it does, and the self-sacrifice and devotion of its senior members, who direct the studies of their more youthful brethren, are known to you all, but, perhaps, none who have not personally assisted at its classes know how great is that self-sacrifice, how real is that devotion, and how ungrudgingly the lasting services thus rendered are bestowed. For this reason I experience a sense of satisfaction, mingled with hope, in which I feel sure that you join, that the powers we have humbly asked for, in the petition recently presented to Her Majesty in Council, will enable the Institute to render to the Architectural Association not only verbal commendation, but also substantial aid in support of its educational work.

And while preparing, in all good faith, to lend a hand, or at least to offer one, to a junior and distinct body, working for objects which, if not identical, are identified with our own, may we not hope that a higher educational institution, far older, infinitely richer than we are, and invested with extraordinary powers, which it derives direct from the Sovereign, may in like manner hold out a hand to us? Although there exists nothing in this country resembling the Paris École des Beaux-Arts, which is maintained at great cost by the State, there is the Royal Academy of Arts, which, by prudent management, under the protection of three kings and one queen of England, has become possessed of very ample means. May we not naturally look to this favoured institution, and hope that the Royal Academy will see its way not only to carry out the provisions relating to architecture as laid down at its foundation, but also to develop the educational powers with which it has been specially intrusted? I hope that no one will misinterpret my meaning, or fancy that I am in the slightest degree inimical to the Royal Academy, or that I wish it the smallest harm. On the contrary, I look back to its "Antique" school with gratitude, for in my time it was the only institution in England which offered any help or encouragement to art-students, and during all the years I have known the Academy there has never been, I feel sure, a President of that body more desirous of elevating the arts of his country, or more wisely alive to the value of useful modifications and developments, or in his own person more fully accomplished, than Sir Frederick Leighton. At the same time, I feel bound, as the President of this Institute, to offer a remark on the present incomplete representation of Architecture at the Royal Academy, and an expression of regret that the careful recommendations of the Royal Commission of 1863, which were intended to improve the character of that representation, have been totally disregarded. Indeed, I venture to direct your attention, gentlemen, to an article entiled, "The Position of Architecture at the Royal Academy," which appeared on the 2nd of October last in the *Builder*,—that excellent journal so long edited by my old and esteemed friend, Mr. George Godwin. That article contained the gist of a memorial which was presented by this Institute twenty-seven years ago, to the Council of the Royal Academy, respectfully praying them for (1) the appointment of a larger number of architect-Academicians and architect-Associates, (2) greater powers for the same, (3) the provision of means of instruction to architect-students, and (4) a more systematic scheme of general instruction in all branches of the fine arts, and more efficient tests, by examination or otherwise, of knowledge and proficiency. Of these four points only the third, the Class of Architecture, was accorded to us, and that only eight years after we had respectfully asked for it. Of the three points which remain, the first and fourth seem to me to be of great importance, and quite worthy, gentlemen, of your renewed consideration during the present session.

Before leaving the subject of the educational means provided for architectural students, I should like to refer to the Examination which, for the last thirty years, has been entrusted to us by statute. Although but slight artistic acquirements are necessary for those who have to fulfil the duties of district surveyor, a large amount of practical knowledge is necessary, and I hold that these appointments, some of which are of considerable value, offer opportunities for professional employment which form a valuable incident in our profession. The emoluments differ greatly in different districts, and I think that the Metropolitan Board would act wisely, and to the public advantage, if it promoted the most meritorious of its surveyors as vacancies from death or resignation occur in the busier and consequently more remunerative districts,—a proceeding which, in the cases respectively of Mr. Aitchison, A.R.A., and Professor T. Roger Smith, has already afforded cause for satisfaction. Anyhow, I venture to recommend young men not to neglect the means of advancement secured, in more ways than one, by passing the Examination for Certificates of Competency to Act as District Surveyor in London, or as Building Surveyor under Local Authorities; for although such positions offer but little scope for the attainment of artistic distinction, they confer substantial advantages, both practical and pecuniary, which an exclusive devotion to art often fails to provide.

I hear a general complaint that professional employment is conspicuously lacking, but there is still a considerable amount of metropolitan building going on, and much land rendered vacant by recent alterations, after remaining uncovered for some time, is now being built upon. This is particularly noticeable on the noble course of the Victoria Embankment, than which I think there are few finer thoroughfares in Europe. A little further westwards, Northumberland Avenue, which remained so long devoid of buildings, is now lined with them, including three huge hotels; and it is very noteworthy that, within the last twenty years, so many edifices of this description should have been erected. It was, no doubt, a pressing want in London, and, judging by the rapidity and ease with which these hotels appear to fill and to continue to be filled, the demand for them does not appear to have been even yet quite supplied. There is another class of buildings the increase of which has been very remarkable of late years, namely theatres, due probably as much to the larger number of visitors, which the facility of locomotion brings to us, as to the spread of the metropolis and the increase of its population.

The wonderful extension of the suburbs still goes on, and looking to the old part of London,—that comprising the greater portion of the City,—although much has been pulled down and rebuilt, there still remains a very large number of buildings, which must find work to do for metropolitan architects for many years still to come. In the provinces, also, there are municipal and other large works commenced and contemplated, and though I have heard some of my younger brethren say that they are fighting the battle of life in our profession somewhat in the guise of an army of martyrs,—and in our early years success seems long deferred,—still, as a rule, it comes to those who fight for it well and honestly, and with perseverance. Indeed, I have lived to see many of my contemporaries of fifty years ago realise a full result for their early labours, and I do not doubt but that fifty years hence, more than one juvenile martyr of the present time will, in all humility and thankfulness, admit the same. Although apparently not so prosperous in England as we were some fifteen or twenty years ago, we are now undoubtedly living in the enjoyment of comforts and comparative advantages unknown, undreamed of, at the beginning of even the third decade of this century, while among the really industrious classes there is a greater distribution of ease and wealth than existed then.

Many changes, too, have come over the spirit of the time of which I am speaking. The strong feelings to which utterance was given after Augustus Welby Pugin published his "Parallels," and when Sir William Tite disputed with Mr. (afterwards Sir Gilbert) Scott as to the shape of a window or the slope of a roof, have considerably softened; and when I remember that one of the most distinguished architects of the century once expressed to me his opinion that St. Paul's Cathedral was only fit to be converted into a railway station, I confess to some surprise, tempered with satisfaction, at seeing quite lately the details of Sir Christopher Wren's masterpiece illustrated in the Architectural Association's Sketch-Book,—a work fairly representative, I think, of the youthful sentiments of the day. And, though I do not agree with that Minister of the Crown who, two years ago, in this room, stated his belief that as far as public buildings were concerned the Gothic style was extinct, yet there can be no doubt that the too literal application of Mediæval forms has recently received, from various causes, a very decided check. In what direction the present desire for freedom in the choice of models and in the application of precedents may lead, I do not attempt to predict. But I remember that this very year, through the energy and zeal of my friend Mr. Blashill,—who, in this particular, followed almost in the footsteps of the late Edmund Sharpe,—some twenty English students accomplished a visit to Rome during their Easter vacation. To visit Rome and Athens was an indispensable part of an architect's education in my youth, when the Classical buildings of Sir John Soane, of Sir Robert Smirke, and afterwards of Sir Charles Barry, were objects of admiration; but at a later period the "Classic" ground of British architects seemed for many years transferred to the old province of the Ile-de-France, then to that of Brittany, and until recently, I am told, to Holland. But now that Italy has had another chance at the hands and pencils of our students,—and I am sure that they did not find her cities wanting in those qualities of picturesque effect which they are taught, very properly, to admire,—I have every hope that the gloom and monastic austerity, the labyrinth-like arrangements of stair and corridor, of which the people who pay for our public and municipal buildings complain as characteristic of too many recent interiors, will disappear.

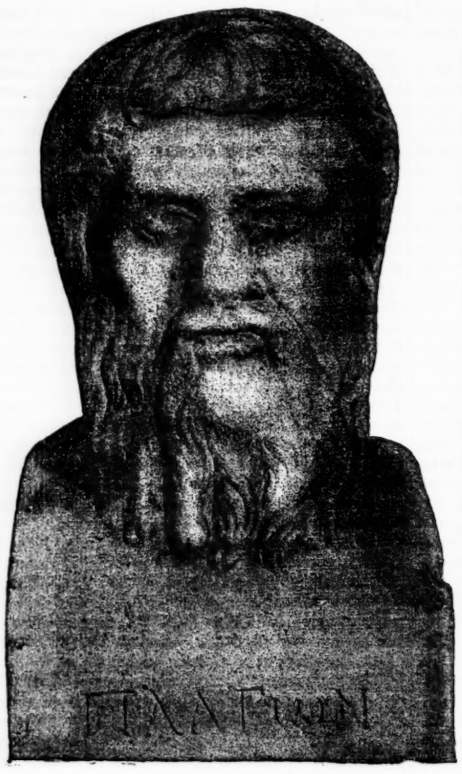
That visit to Italy seems to me to be a sign of the time pregnant with meaning, and I am the more glad of it because men who go thither and who make any stay there are sure to yearn for opportunities of studying on the spot the more refined monuments of classical art which Athens and ancient Greece can alone afford. The recent erection of a British School of Archæology under the hill of Lycabettus may in due course supply such a want, and I cannot veil the significance of the fact that, a day or two hence, our friend Mr. Penrose will be on

his way to Athens to take charge of the new school, as its first Director. Thus, "the whirligig of time brings in his revenges,"—revenges not of a hostile or bitter nature, but teeming with goodwill and satisfaction; for think, gentlemen, how much has been learned, how much information has been stored, how many records of the past, hitherto ignored, have been collected during our progressive albeit circuitous journeys of the last thirty or forty years! What the world of learning owes to the labours of architects and archæologists during this century may be seen in the ordinary library of the English gentleman; the extent of such researches may be tested in the public libraries of the country, and in our own. If, at the same time, there are visible, in the modern catalogue of undoubted architectural triumphs, some conspicuous reverses, let us not forget that much more is often learned from one honest failure than from a score of immature or superficial successes.

[Of the discussion which followed we give a report on another page.]

BUST OF PLATO.

THE illustration represents the inscribed bust of Plato, now in the Berlin museum, to which we recently referred in a Note (p. 584, *ante*) as being undoubtedly authentic, and which, formerly the property of Signor Alessandro Castellani, has now passed into the keeping of the Berlin Museum. The bust is reproduced, by permission, from a plate in the second issue of the new *Jahrbuch* of the German Archæological Institute.



Bust of Plato, in the Berlin Museum.

Illustrations.

ST. MARIE'S (R.C.) CHURCH, SHEFFIELD.

WE illustrate this week the "Altarinos," or shrines of the Blessed Virgin and Sacred Heart, which were erected a few years ago in the north transept of the above church (one of the best works of the late Mr. Hadfield during the revival at the close of the first half of the century).

Both have surbases of alabaster and Hopton Wood stone, with thirteenth-century columns of Frosterly marble, which originally stood in Durham Cathedral, and bear offering tables of Derbyshire fossil marble, for lights and flowers, and the occasional exposition of relics.

The upper portions are carved in wainscot oak, entirely gilded, and richly decorated in colour, with paintings in the panels by Mr. Westlake.

The figure of the Blessed Virgin is carved in pear-wood, richly gilded and decorated, and was the work of Herr Petts, a well-known Munich sculptor. The figure of the Sacred Heart was sculptured by Mr. Boulton, and richly decorated in gold and colours and Mr. Westlake.

Subdued blue velvet curtains hang at each side of the shrine of the Blessed Virgin, and the effect of the whole is rich and decorative, especially on festival days, when they are gay with lights and choice flowers.

The work was designed by Mr. Charles Hadfield, and executed under his supervision.

THE "NEW WORK," OLD ST. PAUL'S CATHEDRAL.

THAT portion of Old St. Paul's Cathedral which stood between the great altar-screen and the east end of the church was called the "New Work," probably to distinguish it from the western portion of the choir, or choir proper, which had been rebuilt by St. Roger. It must always be a matter of doubt whether, when St. Roger rebuilt, or recased, the choir of the cathedral he left the old apse standing, and also whether he contemplated the eastern prolongation of the building, which was carried out some time after his death under the name of the "New Work." The "New Work" at Old St. Paul's consisted of a retro-choir and aisles. At the east end of the former a portion was screened off, and formed a Lady-chapel. At the end of the north aisle a chapel, inclosed within screens, was dedicated to St. George, and a similar one at the end of the south aisle was dedicated to St. Dunstan. Thus it will be seen that in plan the "New Work" corresponded exactly with the arrangement of the presbyteries of York and Lincoln cathedrals. The exact date of the commencement of the "New Work" is not very clearly ascertainable. The choir proper seems to have been completed in the year 1240, and Dugdale says that the "New Work" was commenced in 1256, but the first positive mention that we have of the building called the "New Work" is in a grant by Richard de Hereford, who, in the year 1287, made over the rents of certain houses in Addle Hill to the Dean and Chapter of St. Paul's, "ad opus et sustentationem perpetuam 'Novi Operis' gloriosæ et beatæ Virginis Mariæ, matris Domini mei Jesu Christi fundati et inchoati ad caput famosæ ecclesiæ S. Pauli, versus orientem." Contributions towards the work appear to have come, not only from all the English bishops, but from foreigners also; amongst others are mentioned the Archbishop of Cologne, "Albinus, Bishop of Brechin," in Scotland, and the following Irish bishops:—Christian, Bishop of Emely; William, Bishop of Leghlin; Gilbert, Bishop of Imely; Isaac, Bishop of Killalow; William, Bishop of Conor; Thomas, Bishop of Elfyn; David, Bishop of Cashal; and Thomas, Bishop of Down." Lady Isabell Bruce, daughter of William, King of Scotland, was also a contributor. In the year 1312 the marble pavement of the "New Work," which cost 5d. per foot, was laid down. In general design the New Work seems to have followed the arrangement of the choir, though there seems to have been a considerable difference in the details. Judging fron Hollar's drawings, the piers of the New Work were far more complicated in plan than those of the choir; whereas the capitals of the choir appear to have been foliated, those of the New Work seem all to have been moulded. The triforium of the choir appears to have been filled with geometrical tracery, but that of the New Work has a tendency to curvilinear forms. The east end was certainly a very magnificent composition. The upper portion formed a fine rose-window, enclosed in a square, beneath which were seven large and very wide lights. The tracery of the lower portion of this great window appears to have been doubled. It is a somewhat remarkable fact that this arrangement for the east end of the church is so uncommon in the Middle Ages; for, although rose-windows are common enough at the ends of the transepts and at the west ends of large churches, we rarely find them forming east windows. Durham and Laon are the only cathedrals which occur to us as possessing such a feature. St. Margaret's, Lynn, certainly possesses a rose-window at the east end, but it is a question how far the tracery is original. The beautiful Church of Fulgoat, in Brittany, is a magnificent example, and bears a strong resemblance to Old St. Paul's, and there are little Norman rose-windows in the chancel ends of Barfreston Church, Kent, and Castle Headingham Church, Essex.

The curious Caroline Gothic Church of St. Catherine Cree, in Leadenhall-street, also possesses an eastern rose-window, presumably copied from Old St. Paul's.

The monuments shown in our view are as follow:—Sir Christopher Hatton, 1593, under the fifth arch on the south side; an immense but heavy and ungraceful example of Elizabethan work. The pretty little chantry chapel and tomb of Radulph De Hengham in the south aisle; the stately altar-tomb of Henry Lacy, Earl of Lincoln, in the north-eastern arch between the Lady-chapel and that of St. Dunstan.

The tablets affixed to the columns of the church record Francis Florus, 1593, and other worthies of the time, whilst the brasses on the floor covered the tombs of Robert de Braybroke, bishop of London (1444), Ralph de Baldock, bishop of London, and other distinguished churchmen connected with this noble cathedral. We presume that it is generally known (though perhaps almost as generally forgotten) that Vandyck, the painter, was buried in Old St. Paul's Cathedral; his monument, if one was ever erected, perished with all the others. Surely, however, the new cathedral ought to contain some memorial to this great artist, and we venture to suggest to the Royal Academy and other leading art societies of this country the propriety of voting a small sum out of the funds at their disposal for this purpose.

The drawing we give is, like our previous restorations of Old St. Paul's, founded chiefly on Hollar's views and Dugdale's description and measurements of the ancient church. Hollar's detail is, however, corrected by a careful study of contemporary churches. Wherever Hollar's drawings represent features which could by any possibility have existed as he shows them he has been followed, but where the want of knowledge of Gothic architecture possessed by all the draughtsmen of his time has led him obviously to misrepresent details they have been corrected by comparison with similar details in other churches.

H. W. B.

HOUSE, MONTREAL.

SEVERAL fine residences have recently been erected in Montreal. Our illustration shows one in contemplation, for which plans and specifications have been prepared.

The basement portion it is intended to build in local limestone in rock-faced ashlar, partially dressed. The rest will be in red brick, with Credit Valley or other red stone dressings.

A double conservatory is a feature of the plan, having access from both ground and first floors. Behind this is the picture-gallery and billiard-room. A covered way gives access to the stables in the rear.

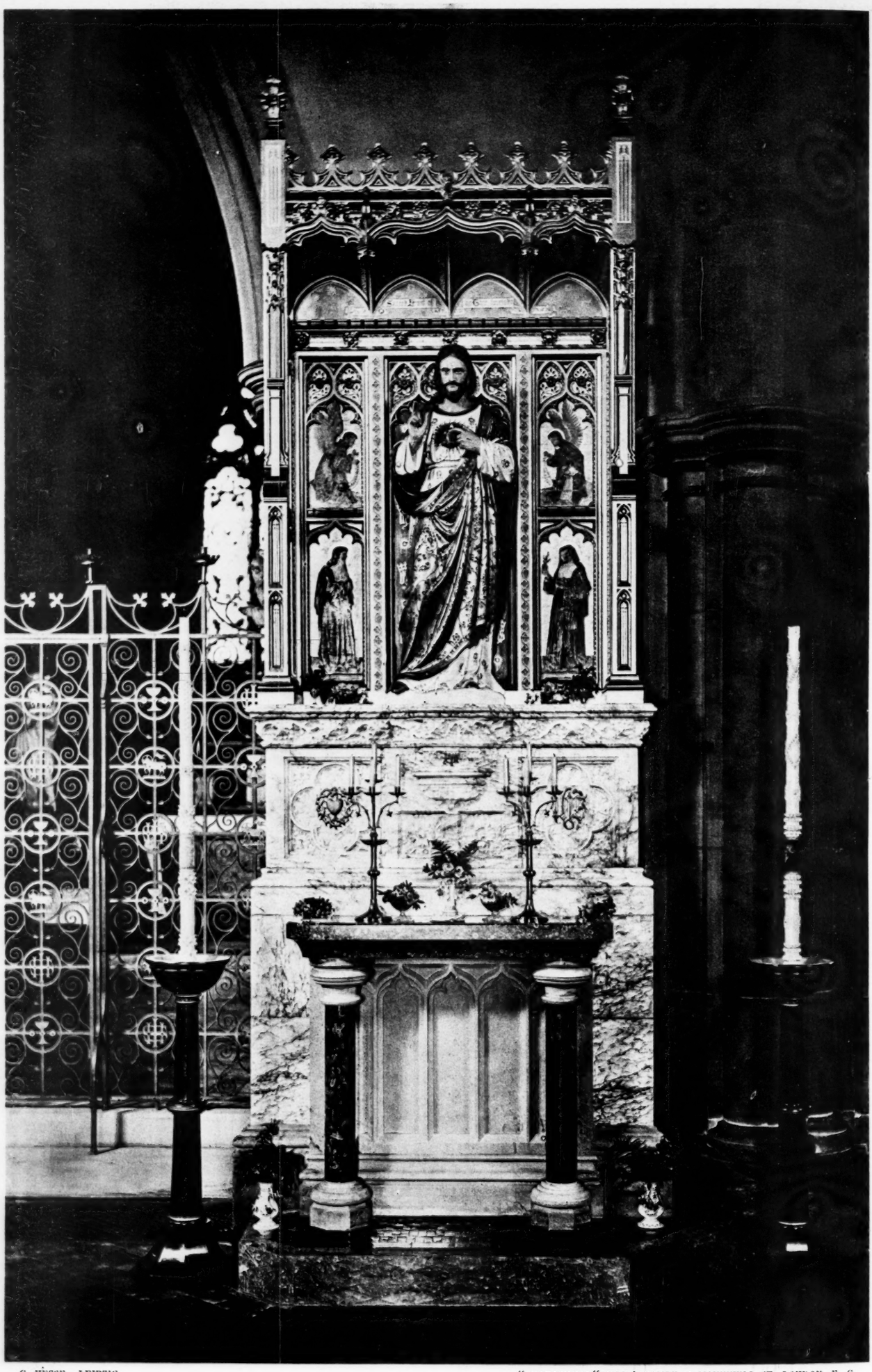
Our illustration is from a drawing exhibited in this year's Royal Academy.

The architects are Messrs. Taylor & Gordon, of London and Montreal.

CHURCH OF OUR LADY OF THE SACRED HEART, WELLINGBOROUGH.

THIS church has been designed for the requirements of the ritual of the Roman Catholic Church. The style of the church is English of the latter part of the fourteenth century, freely treated, and both in the plan and ornamentation the ancient symbolism has been preserved. The main dimensions are 100 ft. in length by 50 ft. across the transepts clear between the walls, the accommodation, including the choir, being for about 400 persons.

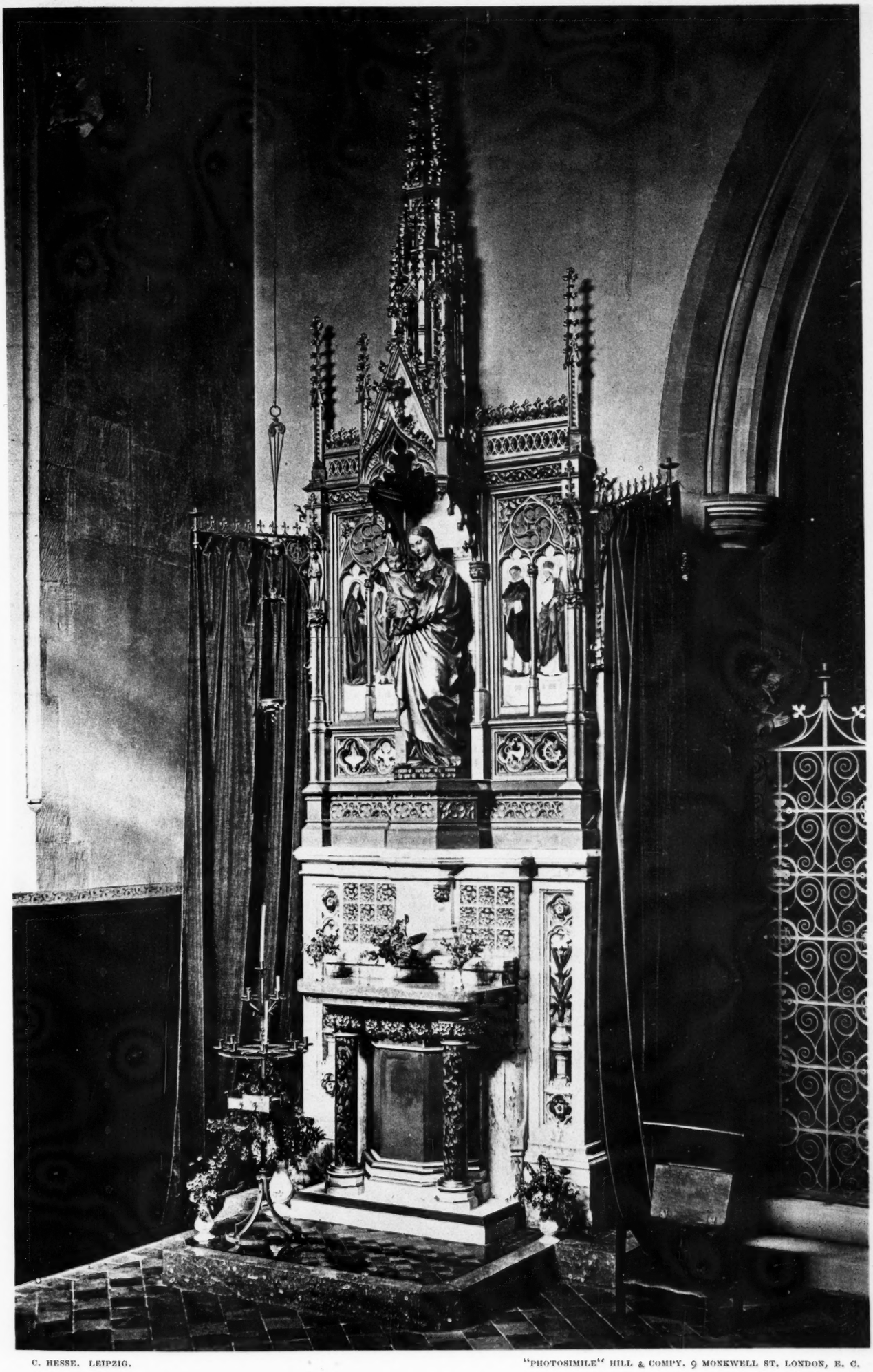
The lighting, warming, and ventilation, have been carefully attended to; besides the usual provisions for the admission of air, flues are constructed in the wall opening upwards in the cills of the windows, an idea first employed by



C. HESSE. LEIPZIG. "PHOTOSIMILE" HILL & COMPY. 9 MONKWELL ST. LONDON, E. C.

SHRINE, ST. MARIE'S (R. C.) CHURCH, SHEFFIELD.

DESIGNED BY MR. HADFIELD, F. R. I. B. A.



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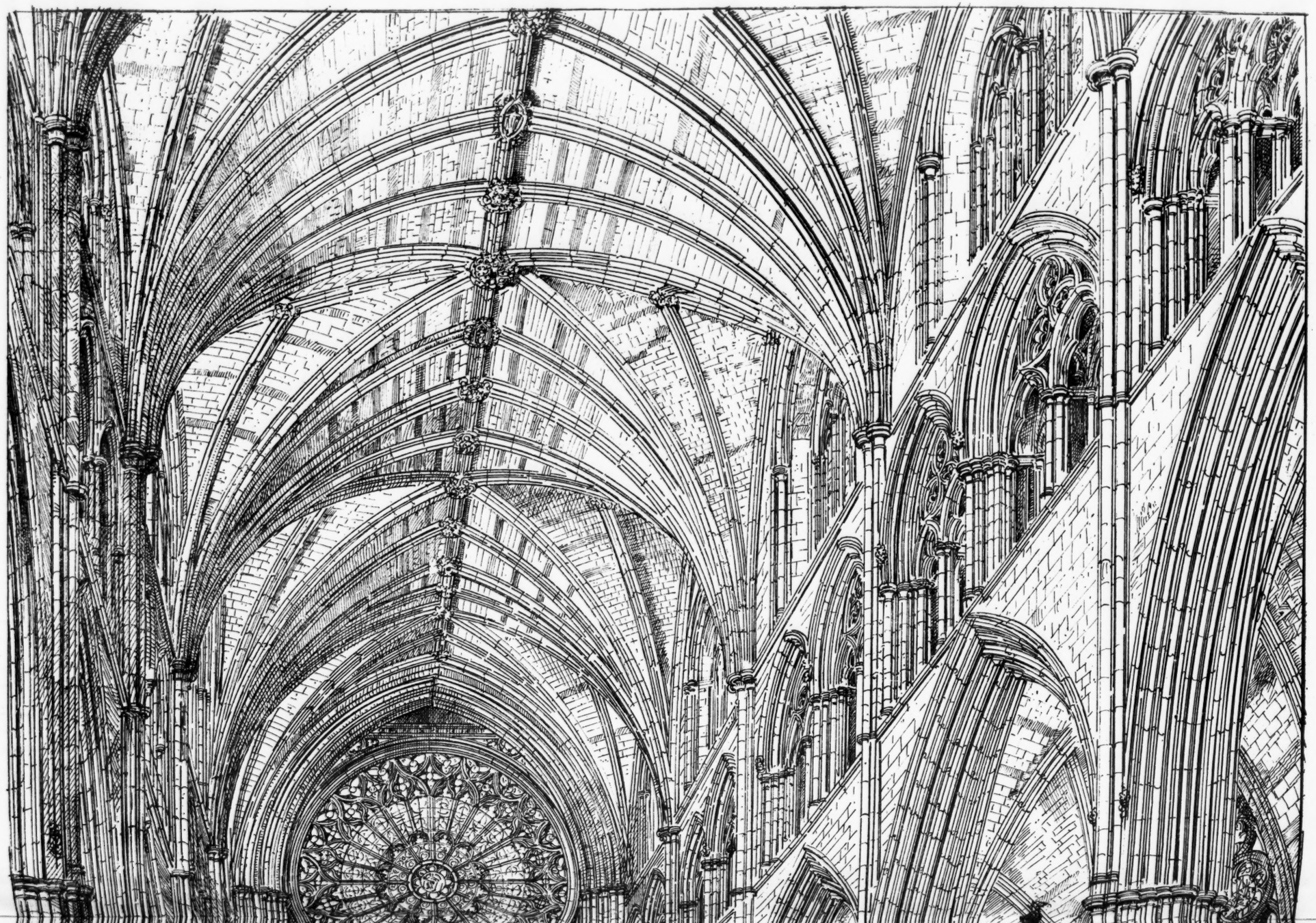

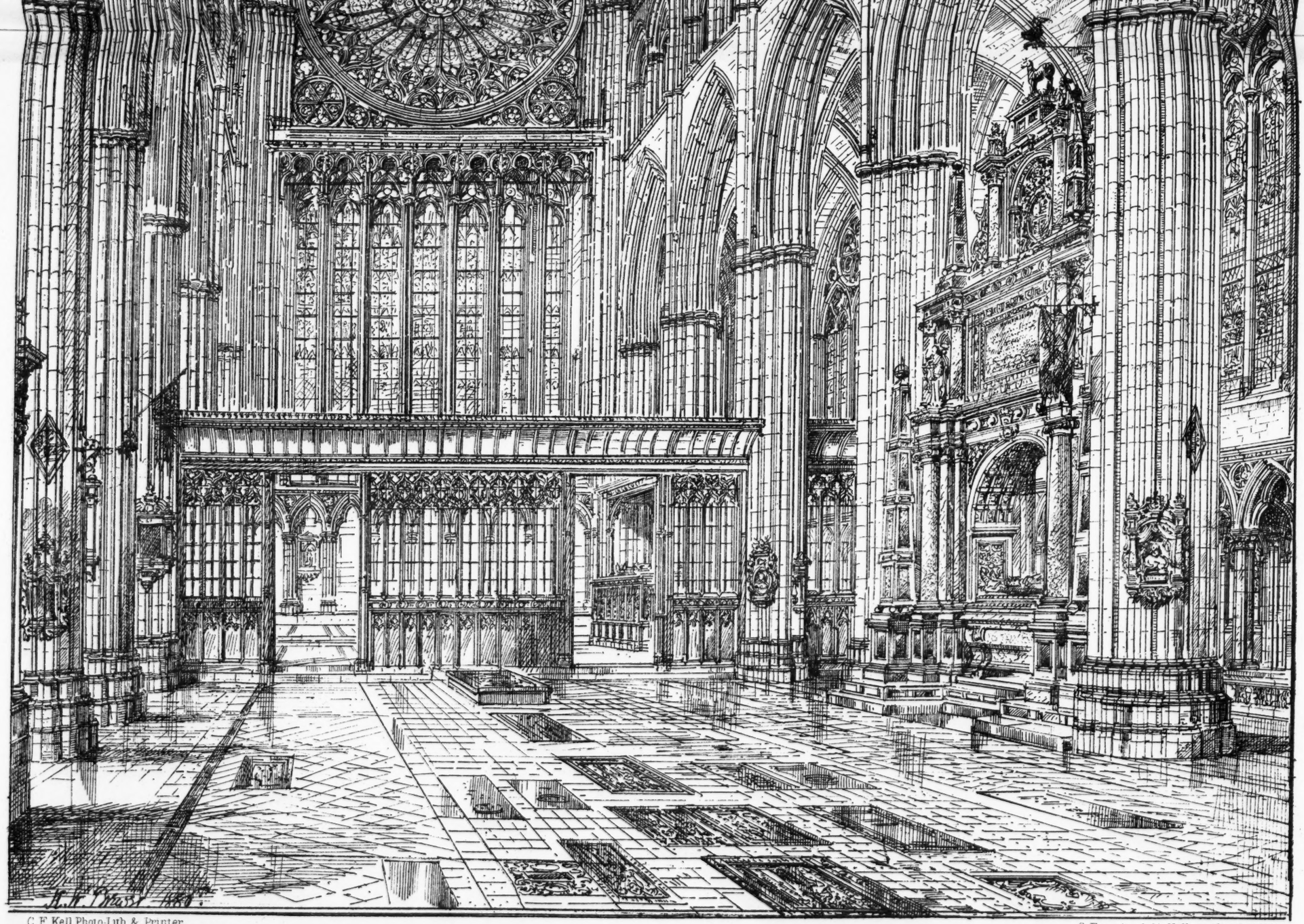

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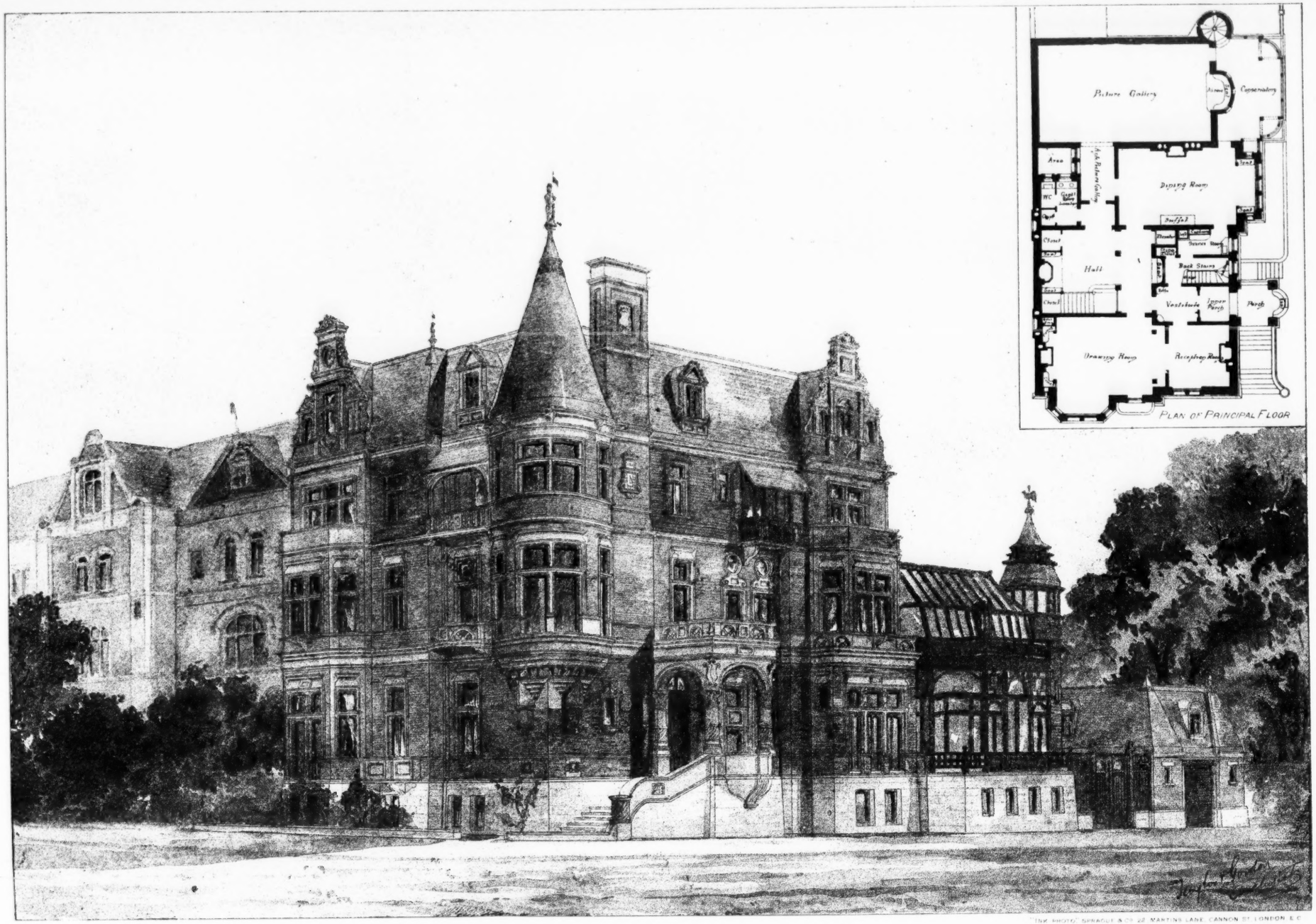
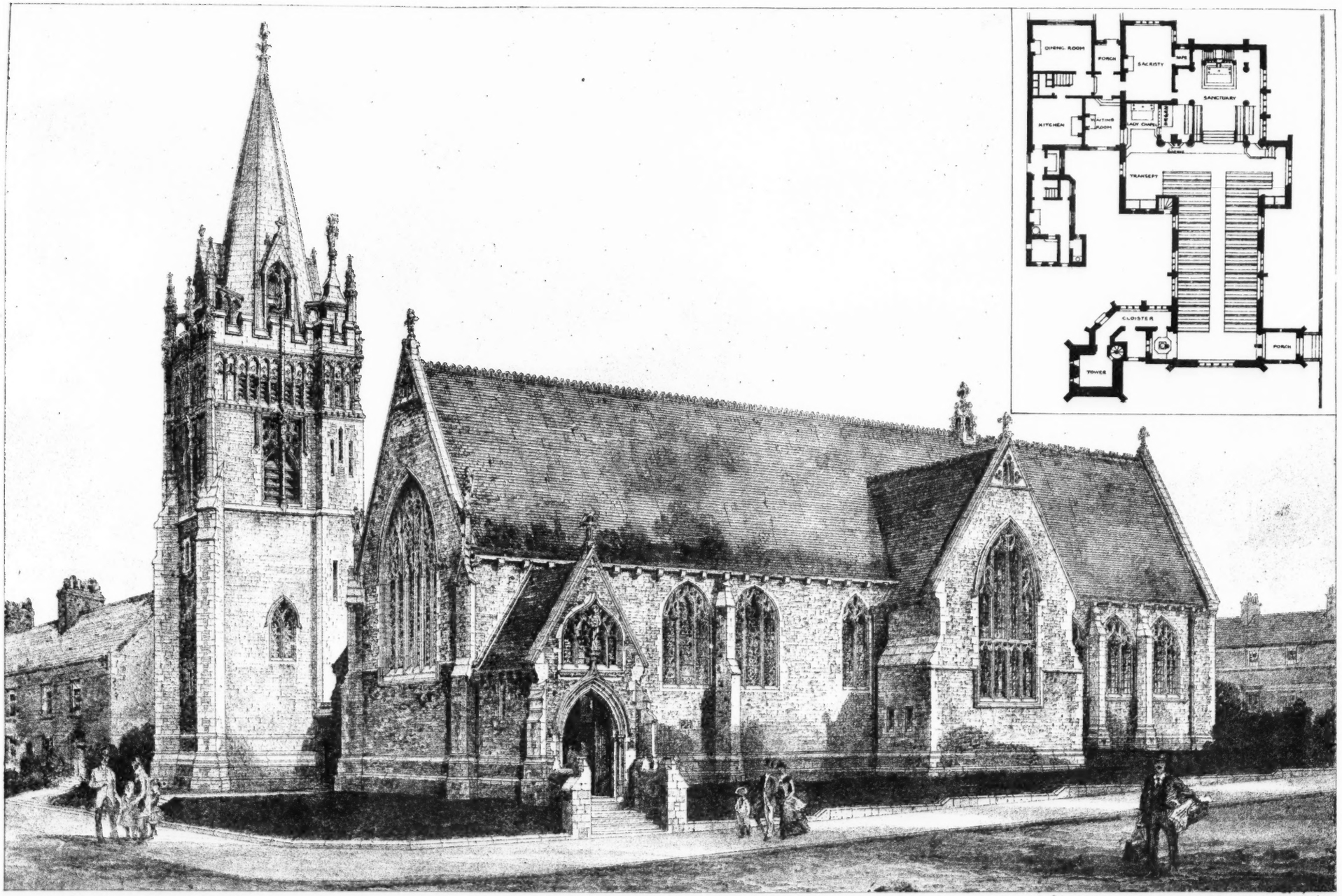
THE "NEW WORK," OLD ST. PAUL'S.



RESIDENCE NEAR MONTREAL, CANADA.—Messrs. Taylor and Gordon, Architects.



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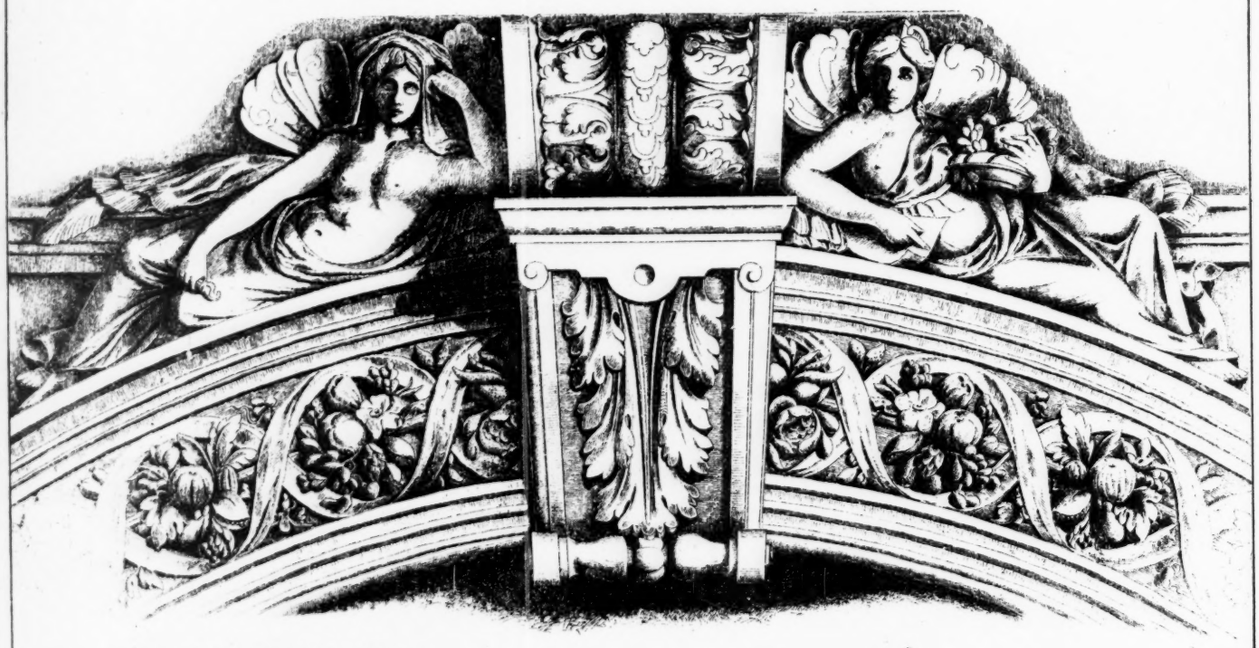
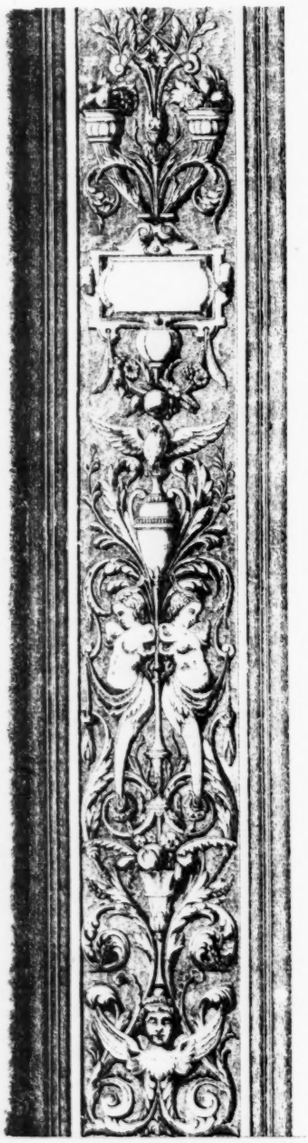
CHURCH OF OUR LADY OF THE SACRED HEART, WELLINGBOROUGH.—Mr. S. J. Nicholl, A.R.I.B.A., Architect.



HEAD OF ARCH.



SOFFIT OF ARCH

JAMB OF WINDOW IN TYMPANUM.

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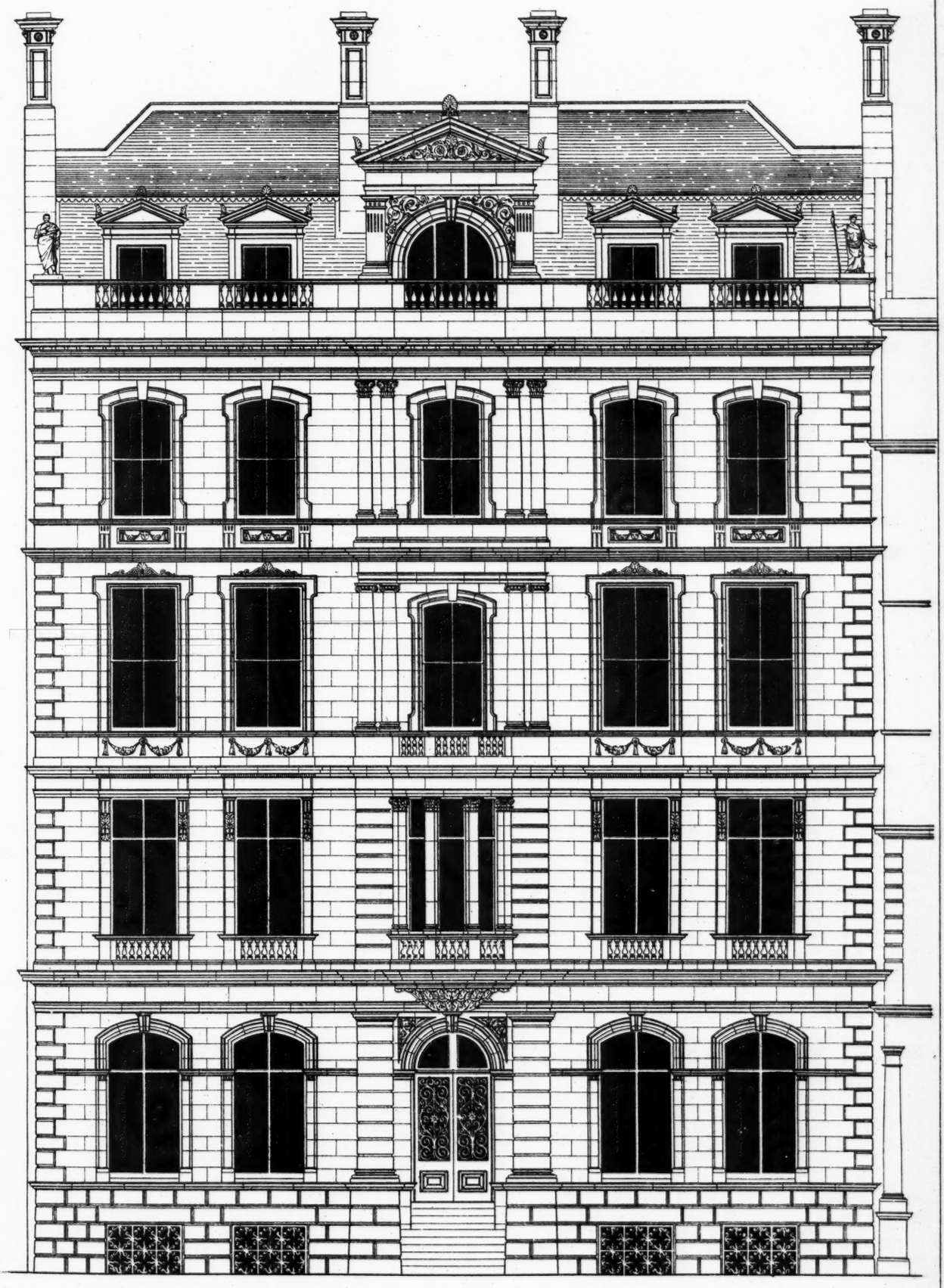
CARVINGS, MAIN ENTRANCE ARCH, NORTHUMBERLAND AVENUE HOTEL.

MESSRS ISAACS AND FLORENCE, ARCHITECTS; MR. J. BOEKBINDER, SCULPTOR.



FACADE · TO · NORTHUMBERLAND · AVENUE

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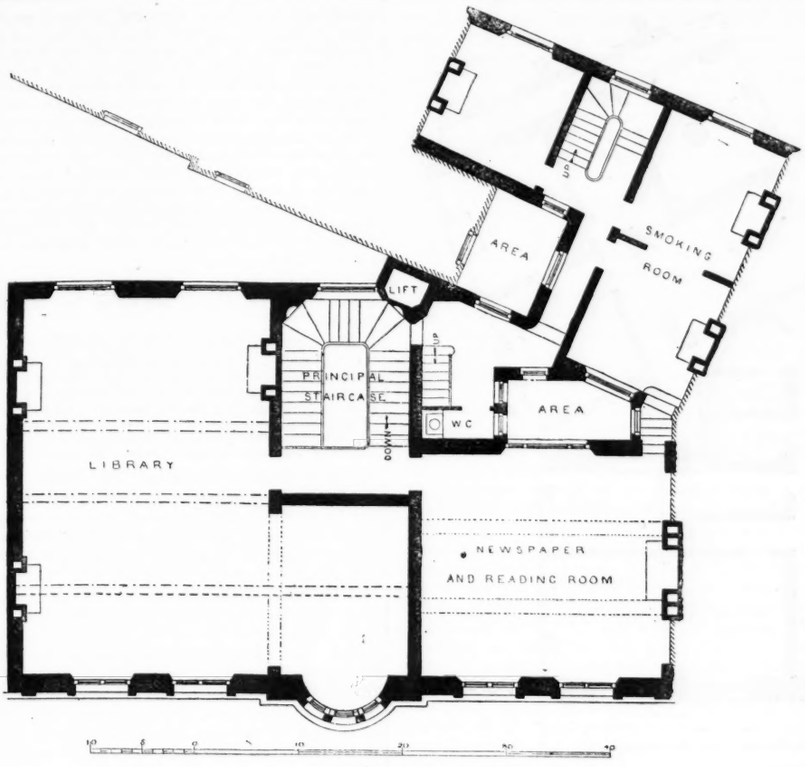
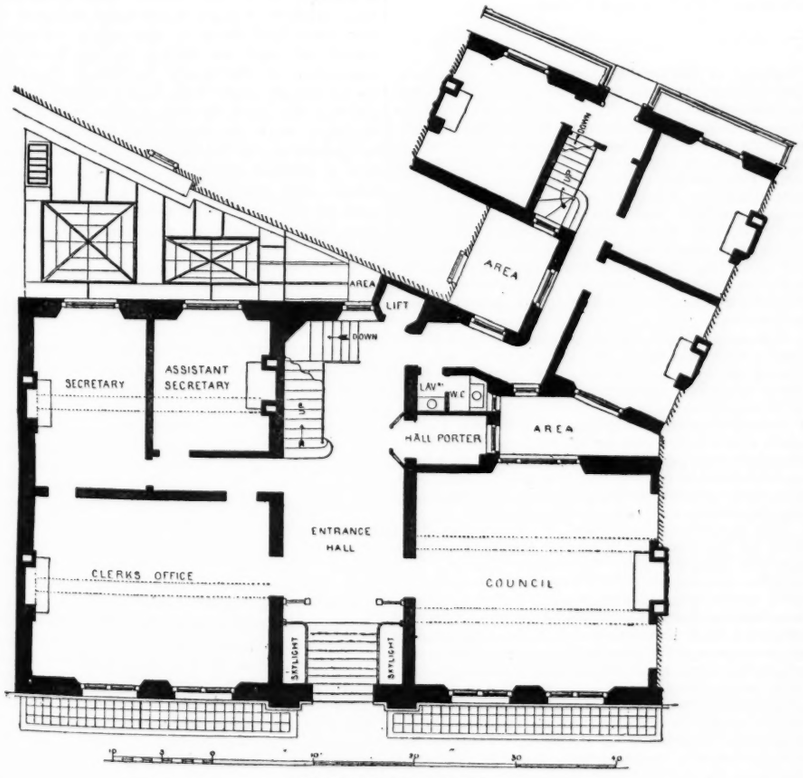
THE ROYAL COLONIAL INSTITUTE, NORTHUMBERLAND AVENUE.

MESSRS. HABERSHON AND FAWCKNER, ARCHITECTS.



FIRST-FLOOR PLAN.



GROUND-FLOOR PLAN.

The Colonial Institute.—Messrs. Habershon & Fawckner, Architects.

the architect in St. Charles's Church, Ogle-street, London, in 1862.

The first stone was laid on the 18th August, 1885, by the Rev. Dr. Riddell (R.C. Bishop of Northampton), who also officiated at the solemn opening on September 2nd, 1886.

The contract for the whole of the work was taken by Mr. F. G. Anstey, from the designs and under the direction of the architect, Mr. S. J. Nicholl, of 1, Cavendish-road, London.

Design for Birmingham Law Courts.—The competition design published in our last should have been described as by Messrs. R. S. Wilkinson & E. G. Warren, architects, and not as by Mr. Wilkinson only.

ROYAL COLONIAL INSTITUTE.

THE premises recently built for the above occupy a central position on the north-east side of Northumberland-avenue, between the Thames Embankment and Northumberland-street, and facing the Hôtel Métropole.

The lower portion is built of granite, rusticated and battering to the string-course of the ground-floor windows, above which the front is carried out in Portland stone, making an effective contrast with the quoins, cornices, and other dressings, which are of blue Bridgend stone. The jambs to the entrance, columns to windows, and pilasters are of polished red Aberdeen granite.

The ground-floor is raised 6 ft. above the Avenue to meet the level of the pavement in Craven-street, in which the Institute has also a frontage.

The general arrangement of the interior consists of central hall, from which direct access is obtained to the large council-chamber, which has a decorated ceiling, and dado of walnut and ebony in fancy panels, and also the offices for the secretary and executive.

A spacious stone staircase leads to the library, an L-shaped room, occupying the full depth of the building, and extending over the front entrance and enhancing the central bay window. The "newspaper," reading, and private writing rooms are also arranged on the first floor; above, and in the rear, are some sixty rooms, at present occupied by the Admiralty Department.

The basement (see plan on next page) has two levels; the lower one intended to accommodate a museum, 50 ft. by 24 ft.; the upper level on which the caretaker's and other offices are arranged.

There are separate staircases for the front and back portions which are shut off by double iron doors. A hydraulic passenger-lift communicates with each floor. Ample light is obtained to all the rooms by means of interior areas, which also preserve the "ancient lights" of adjoining properties.

The joinery and fittings of the principal rooms are a combination of American walnut, pitch-pine, and ebony. The balustrade to the stairs, grills, gasfittings, &c., are of wrought-iron. The walls of the entrance lobby are lined with Belgian marble, and the floors are paved with Minton's tiles. The vaults under the pavement have also been paved and lined with tiles and fitted up for lavatories, water-closets, &c. A large tank is placed on the top of the building for the supply of hydrants on the various floors. The staircases and passages are warmed with hot water.

The furniture and fittings were all designed by the architects, Messrs. W. G. Habershon & Fawckner, the clerk of works being Mr. John Gilling.

The works have been carried out by the following firms:—The building by Messrs. Patman & Fotheringham; the ironwork by Mr. Starkie Gardner; sanitary work by Mr. George Jennings; the heating and gas by Messrs. Berry & Son; the lifts by Messrs. Archibald Smith, & Stevens; and the furnishing by Messrs. Wallace.

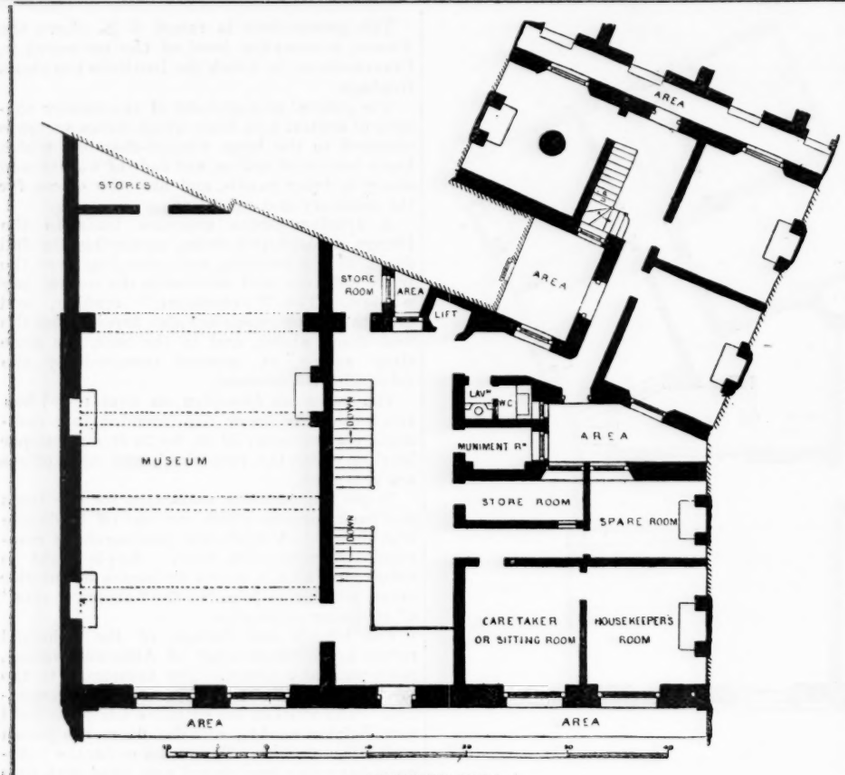
The total cost of the building inclusive is 20,224*l*.

CARVING, NORTHUMBERLAND-AVENUE HOTEL.

WE give this week illustrations of portions of the carving which decorates the principal entrance of the Northumberland-avenue Hotel, executed by Mr. J. Boekbinder, under the direction of Messrs. Isaacs & Florence, the architects of the building. Though not presenting any special originality of conception or idea, the work has the merit of good and careful execution. Mr. Boekbinder is desirous to characterise the work as "Flemish Renaissance"; and there is a certain degree of reminiscence of the feeling of Aldegrever and other designers of that school, in the soffit design at all events, which may justify the description.

Mr. F. C. Penrose.—We are requested to state, as there is some misapprehension on the subject, that Mr. Penrose has accepted the appointment of Director of the British School at Athens for one year only, and is not leaving England permanently.

Sale of Building Land at Epping.—Last week Mr. Frank C. Kettle, of Moorgate-street, submitted for sale, at the Cock Hotel, Epping, forty-four plots of freehold land, being the second portion of the Kendal Lodge Estate. Lot 26, a corner-plot, with a frontage to Kendal-avenue of 75 ft. 4 in., and a frontage to Hartland-road of 280 ft., sold for 155*l*. Lot 41, another corner-plot, with frontages of 89 ft. to Hartland-road, 293 ft. 11 in. to Kendal-avenue, and 97 ft. 4 in. to Hemnalls-street, sold for 320*l*. Lot 45, another corner-plot, having frontages of 59 ft. 4 in. to Kendal-avenue and 260 ft. to Hartland-road, sold for 155*l*. Lots 46 to 50 (inclusive), each having frontages of 60 ft., and an average depth of about 249 ft., sold for 615*l*. collectively. Lot 59, with a frontage of 200 ft. to Kendal-avenue, and an average depth of 53 ft., realised 100*l*.



BASEMENT PLAN.

The Colonial Institute.—Messrs. Habershon & Fawckner, Architects.

THE REGISTRATION OF PLUMBERS.

THE Lord Mayor (Alderman Staples, F.S.A.) presided at the third meeting of the General Council of Plumbers,* which met in the Library Committee-room at the Guildhall, on Wednesday afternoon for the purpose of receiving a report from the committee appointed to devise a scheme for the registration of plumbers. There was a large attendance.

Mr. Alderman Stuart Knill, Master of the Plumbers' Company, thanked the Lord Mayor for his presence on that occasion, and said that it was under his lordship's auspices that the actual work of registration commenced. He ventured to say that they had not been idle in their endeavours to carry out the resolutions passed at the last Council meeting. Within a fortnight from the date of that meeting the committee had met, and had continued to do so at regular intervals, and had instituted the technical examinations that preceded registration. There were certain matters that required legislative action, and these the committee and Court of the Company had under their immediate consideration, and hoped before long, with the assistance of his lordship's successors and the encouragement of their fellow-countrymen generally, to succeed in carrying.

Mr. George Shaw, late Master of the Company, and who will continue to hold the office of Chairman of the Registration Committee, read the report, which was as follows:—

"I have to report that in proceeding with the scheme of registration I deemed it essential to fix the conditions which should be considered sufficient to entitle plumbers to enrolment upon the Company's Register, and with that object I discussed the matter very closely with the Committee, and it was finally decided that the present standing of master plumbers and journeymen, provided they were able to satisfy the Committee of being otherwise qualified, should be deemed a sufficient qualification. It was further decided that journeymen able to produce evidence of apprenticeship to plumbers, coupled with satisfactory testimonials from employers, should be eligible for enrolment.

In the next place, I proposed, and it was decided, that all information placed before the Registering Committee by applicants should be treated as confidential communications, made in good faith, for the sole purpose of satisfying the Plumbers' Company of the qualifications of the applicants, and further, that all inquiries necessary to test the correctness of applicants' statements or otherwise should be conducted with due circumspection and regard for the personal interests of the parties. I have great pleasure in saying that from this method of treatment, and from the representative character of the Committee, the utmost goodwill has been displayed by all, and we find that, with few, if any, exceptions, we obtain information freely and impartially from all ranks of the plumbing trade, and from men who, though active opponents in business, are quite united in their desire and effort to elevate the general status of the craft.

The applications for registration have come in from a very wide area. We have not only applications from every quarter of London, but from almost every important district of the United Kingdom. With regard to the applications from distant places, I have proposed, and it has been agreed, that in cases where it is inconvenient or impracticable for the applicants passed by the Committee to attend at Guildhall to receive the Company's Certificate, they shall be issued in the applicants' districts, under due regulations and adequate precautions.

The number of each class of applications dealt with by the Committee up to yesterday was:—London Masters, 149; Provincial Masters, 123; London Journeymen, 280; Provincial Journeymen, 150; total applications dealt with, 702; and several hundred applications have yet to be considered. I proposed that Examiners should be appointed to examine practically those applicants who were unable otherwise to satisfy the Committee of their qualifications as plumbers, and after the separate nomination of almost every practical plumber upon the Committee, eight were elected to act with me in this important department of the work. I sought and obtained special facilities from the City and Guilds Institute for carrying out these examinations in a manner which I consider to be thoroughly sufficient to test the efficiency of the candidates in the practical as well as the theoretical branches of the plumbers' trade. My endeavour has been to make these examinations of as practical a character as possible,—not so severe as to prevent men of even moderate skill and knowledge from obtaining the Company's Certificate, while, at the same time, being such as every man should, in my opinion, be able to pass to entitle him to work practically as a plumber in our houses. Later, these examinations may be changed as technical instruction may extend among the coming generations of plumbers, but at present I believe we have as sound and efficient a system as the circumstances warrant. During the course of the practical work of the registration, it has been thought desirable to have the additional assistance of members to the Committee, for the applications have been numerous and the examination of them is laborious. Messrs. J. C. Ashdown, A. Common, R. A. Nurse, and J. Smith are now acting with us, and their aid will, I am sure, be generally appreciated by the trade. I have proposed, and it has been accepted by the Committee, that a *separate* register should be kept of those plumbers who in the opinion of the Examining Committee are not possessed of the necessary qualifications sufficient to entitle them to *immediate* registration, but may be able to qualify themselves later after they have acquired further experience.

In conclusion, I have to report and express my warm acknowledgments for the loyal support and unflagging assistance I have received from every member of the Committee and the Examiners, and also my acknowledgments for the numerous expressions of approval and offers of co-operation tendered to me personally from plumbers in all parts of the kingdom."

The report having been adopted, on the motion of Mr. Shaw, seconded by Mr. P. J. Davies,

Mr. George Godwin, F.R.S., moved:—

"That the warm thanks of the Plumbers' Company and General Council are tended to the City and Guilds Institute for the encouragement and assistance they have given in promoting the knowledge of the art and mystery of plumbing by means of the special classes in London and throughout the provinces, thus spreading by their high authority the action of the Plumbers' Company."

He said that to his mind the result of the Committee's work was not quite satisfactory, for he thought the numbers enrolled ought to have been very much larger. This, he had no doubt, would be remedied as the objects of the examination became better known. The necessity for such a movement as this was so great that one was astonished that the trade had been allowed to go on as it had for so many years. As an instance of this he mentioned that a few days ago he heard of a good house that had been built about twenty years, which had a bad reputation for dampness. The drains were seen to several times without any result, until lately an architect who knew something about sanitary matters,—and it was not all architects who had given their attention to that subject, though many were doing so now, and some had done so for many years,—was called in, and on taking up the floor of the basement of the house he found that in the water supply pipe there was a large hole, which allowed the water to escape every time it passed through, with the result that the whole surface of ground under the basement floor was nothing but a puddle. That was but one instance of what was going on in hundreds of houses, and of the way in which work was but too frequently done and remained undetected for years.

Dr. Vacher, of Birkenhead, seconded the resolution, which was agreed to.

Mr. George Shaw was next presented with an illuminated address on vellum, accompanied by a certificate of enrolment, in recognition of his services as Master of the Company and Chairman of the Registration Committee. The success that had attended Mr. Shaw's efforts having been referred to by the Master, the Lord Mayor presented him with the certificate and address. This address bore the signature of the Master of the Company and the Lord Mayor, on behalf of the General Council. The design of the illumination has been executed by Mr. Joseph Pippet, mediæval artist, Solihull, Warwickshire. On either side of the address specimens of good and bad plumbing are depicted, fouled water being discharged through a demon's head on one side and pure water through a cherub's head on the other. These examples of the good and bad systems of plumbing are separated by the arms and crest of Mr. George Shaw, and are bordered on one side by the figure of St. Michael (which forms the upper portion of the crest of the Plumbers' Company) bearing in his left hand scales and in his right a lance, which transfixes a three-headed demon bearing on its several collars the words "Ruin," "Disease," "Death." The border on the other side is the British oak, growing out of a field of flowers and supporting the City arms, through the foliage of the tree being disclosed views of the Hall of the Trinity Guild as represented in "Old London" (which Mr. Shaw initiated); and surmounting the tree is a triple fountain, which forms part of the crest of the Plumbers' Company. The first illuminated letter of the address bears the arms and crest of the Plumbers' Company, combined with picturesque views of gabled roofs and ancient forms of leaden spirets. Mr. Godwin expressed his opinion that this address, in design and execution, was very much above the average of similar works of the kind. The Lord Mayor endorsed this opinion.

Mr. Shaw having returned thanks for the compliment,

* This Council, it should be stated, includes not only members of the Plumbers' Company, but architects, builders, engineers, medical men, master plumbers and journeymen plumbers (society and non-society men), besides a few gentlemen concerned in legislation and local government. Its constitution has been already given in the columns of the *Builder*.

Mr. J. Underwood (Chairman of the Health Committee, Leicester), moved, and Mr. S. Stevens Hellyer seconded, a vote of thanks to the Lord Mayor, which was heartily accorded.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of this Institute for the present session was held on Monday last, Mr. Edward I'Anson, F.G.S., President, in the chair.

Mr. William H. White (Secretary) announced that since the issue of the last list of members, the following Associates were deceased, viz., Messrs. Oswald Adshead, Thomas Farrer, and Harry Saxon Snell, jun. In conformity with the By-laws the sum of five guineas had been received for the library from Mr. J. T. Newman, Fellow, and 1*l.* from Mr. Anderson, Associate. Several donations of books had been made, and the principal donations were mentioned in detail in the first number of the "Proceedings." He might, however, specially refer to the work presented by M. Charles Garnier. Since the "Proceedings" were published, M. Honoré Daumet, Member of the Institut of France, and Hon. Corresponding Member of the Institute, the architect of the Château of Chantilly, had visited London. He brought with him some plans and sections of the château, and also two volumes of a very valuable work published in 1876, and referring to an archæological mission to Macedonia by himself and M. Heuzey.

Mr. Octavius Hansard proposed a vote of thanks to the donors, with a special vote to M. Garnier, who had presented to the library all the magnificent works he had published. The votes were carried by acclamation.

The following new members were then balloted for and declared duly elected:—As *Fellows*, Messrs. G. M. Alexander, of Cape Town, Cape Colony; P. Herapath, of Auckland, New Zealand; G. E. Grayson, of Liverpool; F. U. Holme, of Liverpool; J. S. E. Ellis, of Sydney; and A. Young, of Queen Anne's Gate. As *Associates*, Messrs. W. Dunn, of Crouch-hill; E. A. Coxhead, of Eastbourne; and W. G. Smithson, of Idridgehay, near Derby.

The Street Bust.

Mr. A. W. Blomfield, M.A., F.S.A. (Vice-President).—Mr. President, before the business of the evening commences, I may be permitted to say a few words in discharging the duty which now falls upon me, of presenting to the Institute, on behalf of the subscribers, a marble bust of one of our most distinguished Presidents, Mr. George Edmund Street. His memory, sir, is still green in the hearts of his friends and admirers, and will long continue to be so. I am sure, therefore, that no eulogy is required on my part to claim for it a just title to the honourable distinction of being preserved in its visible form within the walls of this Institute. I think I may venture to say, without fear of contradiction, that few if any of us ever listened to an abler and better address from the chair which you so worthily occupy, as that with which Mr. Street opened our annual session five years ago. No one who listened to that address could fail to recognise in it the promise of a brilliant and useful career as President of this Institute. All who knew him must feel perfectly well assured that if he had been spared to complete his term of office in unimpaired health and vigour, that promise would have been amply and honourably fulfilled. Of the bust itself, and its merits as a work of art and a likeness, I hesitate to speak in the presence of the distinguished sculptor; but I may say this, that my friend Mr. Armstead added to his other eminent qualifications for the task a close personal friendship with Mr. Street, and an intimate knowledge of his features and expression, without which a posthumous portrait would have been almost impossible. I have now, sir, formally, as representing the Committee, to present to the Institute the bust which is now before us, and I will simply conclude with the expression of a regret and of a hope,—of regret that so long a time has elapsed since the death of Mr. Street before its presentation,; and of hope that this memorial which is now before us may not only long survive to recall the features of a friend whom we knew so well and respected so much, but that it may also serve to remind us, to our benefit, of the high mind and lofty aspirations which were the animating principles of the career of a great and good man (applause). I would also like to say before sitting down that the fund for the portrait of our late President is progressing favourably.

The President.—I am sure it would only be expressing your feelings if I say that the Institute cordially accepts from the Committee the presentation of this bust. It will always be, I think, a living memorial of a man whose genius and ability were respected and admired so much.

Mr. J. Macvicar Anderson (Hon. Secretary),—Sir, you will agree with me that it required no marble monument to keep alive the memory of Mr. Street. In this room, and in the hearts of a body of men whose lives are devoted to the study and practice of architecture, it would be strange, indeed, if we did not welcome the living likeness of one who was at once of the most diligent students and one of the most accomplished masters in our art that our times have seen. Mr. Street was what all distinguished professors of our art are not,—he was loyal to this Institute and proud of its membership. If any of you doubt this I would recommend you to peruse that remarkable address to which Mr. Blomfield has already alluded,—the only one he, unfortunately, was permitted to deliver from this chair,—an address in which he told us that this Institute existed not because of our art, but for our art, in order to promote its best interests and success; in which he told us that the interests of this Institute and the interests of the public were identical, as, undoubtedly, they are in the opinion of all right-thinking people; in which he told us that the conditions of our membership here were of such a high and noble character that any one who honoured those conditions could only work, as a member of this Institute, in the spirit and according to the traditions of gentlemen. It was an address in which he told us that each one individually could improve the vernacular of the art, low as its standard may be in the present day, by showing in his own practice how it is possible to produce good work of the simplest possible description, without being either ostentatious or costly. Mr. Street also pointed out how the Government of the day should always refer to the Council of the Institute, as a body of experts, best capable of giving an opinion on architectural subjects,—on works of great and public importance,—advice that I may take occasion to say might be well taken by the Government of the present day. This Institute has already taken some action in regard to the great public buildings for the Admiralty and War Offices, and certainly my humble influence will be used in the direction of inducing such members of the Government as I have the honour to know, to take this Institute into their counsels in any decision they may arrive at as to these buildings. Mr. Street was a member of the Royal Academy, and was proud of the distinguished position he held there, as one of the very few members of our profession who are selected to enjoy the privilege of writing "R.A." after their names. But, though he was proud of this distinction, he was no less proud of his membership of the Institute, and still more proud of having been selected to fill the honourable position of its President. This is shown, if any one doubts it, by his own words, when he said, in the address to which I have alluded, that he felt that "we cannot too much interest ourselves in the work of this Institute in order, above all things, that the position of our art, as our art, may more and more be recognised." In regard to that address well might Mr. Beresford-Hope, in seconding the vote of thanks to Mr. Street, remark that it was "masculine, able, sensible, well-spoken, and admirably composed." We can no longer, gentlemen, honour the presence of Mr. Street, for he has gone to the land of spirits, but we can, each in his own position, honour his memory by endeavouring to emulate the noble example he set us, and by dedicating the powers with which we may be endowed to the earnest study and honourable practice of the profession of that art which it is our privilege as it was his glory to practise.

The President then delivered his address, which we print on another page.

Mr. J. Fletcher Moulton, Q.C.—It falls to my pleasant lot to move a vote of thanks to the President, for the charming and most interesting address which he has just given. I suppose that I am selected to do this, because I possess in a marked degree that faculty of wonder with which a very uninstructed person listens to the utterances of the erudite; and I may say, if this was the reason that I was selected, the address which we have just heard is one which has defeated that reason, for anything plainer and simpler, and going straighter home to the hearts of educated men, I cannot imagine coming from the Presidential chair. I am quite sure, that in moving this vote of thanks, I shall be expressing, though very imperfectly, the desire of all those who had the pleasure of listening to it.

Mr. George Aitchison, A.R.A.—I beg to second this vote of thanks to our President for the excellent address he has given us; and I feel with every one here that he has given us a great deal of information on many points on which we were very anxious to hear his opinion. I am sure that we can re-echo many of the things he has said, for there is a very marked improvement in the general artistic feeling that now pervades the whole of architecture in this, and I may say, in almost all modern European countries. I was extremely pleased to hear the great importance he gave to construction, and to the effects which really fine construction produce on the mind. It was my good fortune within the last few days to have been in one of the towns in the South of France where there is a Romanesque cathedral almost utterly devoid of any kind of ornament, and yet the proportions of it are so excellent that I do not know any of the more ornate buildings of France that have given me more pleasure, and at the same time have impressed me with a greater opinion of the extraordinary skill of those architects whose names are now almost unknown, but who at least have left us a proof of what can be done by pure proportion, and the skill of forming elegant edifices with plainness *though with* perfect success.

The vote of thanks was then put, and was most cordially received.

The President.—Gentlemen, I thank you very sincerely for so kindly receiving the few words you have allowed me to address to you. I have already told you how grateful I am to you all for giving me the opportunity of doing it. I feel very much the honour you have done me, and I am greatly pleased that any words I have written have been satisfactory to you.

Mr. Charles Barry, F.S.A.—Mr. President and gentlemen, I have been asked to request you to perform another pleasing duty, which is peculiar to this evening, viz., to express our thanks for the result of the artistic labours of Mr. Armstead in the bust which has just been presented to the Institute. We are not unaccustomed here to feel ourselves under very deep obligations to both painters and sculptors who have assisted to embellish the rooms in which we meet, and Mr. Armstead has enabled us, by the beautiful bust and good likeness that he has given us of our late friend, to transmit the memory of a great and good man to those who are to come after us, to add to the list of those worthies in our art who have gained for themselves an honourable place and who deserve to be remembered for many and many a long year. Mr. Armstead on this occasion, as has been the case on others, has met the somewhat limited means which we poor architects have at our disposal by giving us a grand work of art at very much less, I am told by the treasurer, than we had any right to expect. Therefore I am quite sure you will feel with me that we ought not to separate to-night without expressing our great thanks to him for the assistance he has given us on this occasion.

The motion was not formally seconded, but was received with acclamation.

Mr. Armstead, R.A.—Sir, and gentlemen, I beg to thank you very sincerely for the honour you have conferred upon me by allowing me to make a bust of one of your distinguished Presidents. It was a labour of love. I hope it has been worthy of your trust; and I thank you very sincerely for your kindness.

Remains of the Palace of Darius at Susa.

Mr. Aitchison.—Mr. President and gentlemen, I dare say you will bear with me for five minutes, because what I am about to say is more of a tribute to our Hon. Corresponding Member, M. Paul Sédille, than anything concerning myself. I happened, in coming from the South of France, to pass through Paris, and I called and saw M. Sédille. He said to

me, "They have to-day got at the Louvre some remains of the Palace of Darius at Susa, which have been brought over by M. and Madame Dieulafoy. They have been brought to the Louvre for the purpose of being seen by the President of the Republic, and as M. Dieulafoy and his wife are friends of mine, I think I can enable you to be the first Englishman to see them." I may tell you that Madame Dieulafoy has been so important an assistant to her husband that the French Republic has made her, I believe, the second lady who has ever received the decoration of the Legion of Honour. I took M. Sédille's note, and had, of course, to wait until the President of the Republic with his friends and officials had seen these things, but after that I was permitted to inspect them before any of the public had seen them, and I believe I am the first Englishman who has done so. Those parts that are put up are in one of the vaults of the Louvre, which are not yet open to the public. They consist of two walls or portions of walls about 16 ft. long and nearly up to the springing of the vaults. They are in bricks each about 13½ in. long and 3½ in. high, all enamelled, with the figures in bas-relief. The top, which there was not height enough to put up, consists of about six courses of these bricks. The whole ground is of a pale turquoise green, and the upper portion, which, as I have said, there was not height enough to put up, consists simply of crenellations in white, somewhat like the modern Arabic ones. Below that come two courses of brick with a turquoise green ground, with triangles of white standing on their points. Between them are three more courses, on the top course of which are palmettes in white with stalks in yellow on the two lower courses, and below the figure frieze this band of ornament, seven courses high, is repeated. The figure frieze is about 5 ft. 6 in. high, and is divided from the ornament at top and bottom by half a brick width of broad yellow band. On this frieze, with its turquoise green ground, are six soldiers walking, with spears in their right hands, extending the whole height from yellow line to yellow line. They have also strung bows on their left shoulders, and covered quivers at their backs. They wear turbans, the small cap brown and the twist yellow. The quivers are dark, covered with a sort of shape like a kidney. The cover or top of the quiver is white. The dresses are alternately white and yellow. The white dresses have rhomboidal patterns with three towers on them in black, and the yellow dresses have circles of green with white stars on them. The dark copper-coloured skin of the soldiers is shown on the hands, faces, and legs, above yellow slippers, and the beards have this extraordinary peculiarity, that they are all nearly of the same colour as the green ground. I believe it is the custom even now in some parts of the East to dye the human beard with some fancy colour. The hair is black and curled. Beyond that I do not know that I have much more to add, but I thought it might interest you to give you this information.

The President then announced that the next meeting would take place on the 15th inst., when a paper would be read in English, entitled "Une Étude sur la Renaissance de la Polychromie Monumentale en France," by M. Paul Sédille, Hon. Corresponding Member.

MOSAIC PAVEMENTS, AND THEIR TEACHINGS.

SIR,—With reference to the remarks in the *Builder* of the 23rd of October [p. 581], on the practical importance of studying the "details of formation" of Roman tesselated pavements, it may be of interest to note that an unusually fine specimen of mosaic pavement, of geometrical design, was recently discovered at Colchester, 5 ft. beneath the surface of a street. It was at first thought hopeless to attempt its removal, but by the skill and energy of Mr. L. J. Watts, of Colchester, the operation was successfully accomplished, the portions being first set in plaster, and then removed *en bloc*. By this means the pavement now retains its exact appearance when discovered (even to the unevenness of surface), and "the colour and composition of the mortar which holds the blocks of stone together" (the importance of which factor is insisted upon in the *Builder*) can be studied to perfection. In most cases the pavements have been so much broken up before removal that this is difficult, if not impossible. This pavement is now visible to the public, having been deposited in the Museum.

It is a curious fact that for the first time at Colchester, or (I imagine) anywhere else, a good-sized lump of tesselated pavement, with the concrete bed on which it rested, has been found to have been employed as material by the Norman builders, having been discovered by Mr. Watts and myself in the rear of the 5 ft. wall of a building which I assign to the close of the eleventh century, and which has just been deliberately demolished.

J. H. R.

SCULPTURED STONES AT ST. NICHOLAS CHURCH, IPSWICH.

SIR,—In your issue for Oct. 16 [p. 573] your correspondent, Lord F. Hervey, asks some questions respecting the old sculptured stones in the Church of St. Nicholas, Ipswich. As I made drawings of them when they were outside, let into the church wall, half a century ago, I may be able to give some information.

The letters on that of St. Michael encountering the Dragon are, under the right arm of angel, the remains of that word, viz., N. The rest is:—

HER : SC : MICHAEL : TEHTHD : DANE : DRAGN.

i.e., "Here St. Michael fighteth Dane Dragon." It is to be noted that in the inscription there are two forms of E introduced; the first part of "Michael" is obscured. It is quite certain that the figure alluded to is intended for a boar. The generic form is like that animal still found in the Rhine provinces; and the tusks leave no doubt whatever. The inscription above the boar has always been very obscure, but was probably "*In dedications ecclesiæ omnium sanctorum.*" The parts italicised were visible when my drawing was made. I do not remember anything like "ostolus."

J. G. WALLER, F.S.A.

"INTERPRETATION OF BY-LAWS."

SIR,—In answer to the letter of "A Chiswick Builder" in your issue of October 23rd [p. 612], I beg to point out that the object of the by-laws is to obtain a thickness of 9 in. between the backs of chimney openings, and that if one wall is erected against another, although touching, they are both external walls, and in that case the thickness of the back of each chimney opening should be 4½ in. It would be arbitrary and unreasonable to read the by-law to mean that the backs of these openings should be 9 in. in each case, though in a case where an existing external wall is to be altered into a party-wall, it is usual to insist that a withe of 4½ in. be built against it, so as to make sure that there would be 9 in. of brickwork between the flues and any timber that may be in the old walls.

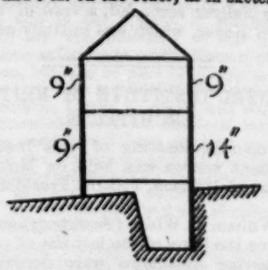
I have never heard of such an idea as that each flue was to have its distinct 4½ in. of brickwork round it; but, of course, the 4½ in. work of one flue is applicable to the other, as all that is required is distance of 4½ in. of brickwork between the flues.

With respect to the by-law requiring parapets to walls within a distance of 15 ft. of other buildings, I certainly think this by-law absurd. It would require parapets to back additions where buildings are contiguous; also a person proposing to erect a building, say, 12 ft. within his own ground, may have to spoil the elevation, and be unable, by constructing overhanging eaves, to prevent the walls getting damp in consequence of a neighbour having previously erected some small building to the full extent of his own ground; or a person may have deposited a plan one day with the surveyor which may be satisfactory, but a plan deposited later on may make this same building irregular before it is erected.

What I would propose would be that the by-law should be framed so as to insist on parapet walls where a building is erected within a certain distance of the boundary of the property (say 3 ft. or 4 ft., which I consider quite sufficient). This would do away with the haphazard way of putting the onus on the unfortunate builder who should be last in erecting his building, although the property is precisely similar.

By insisting on this by-law no good is done, but the surveyor brings himself into antagonism with architects, builders, and the public in general, which is greatly to his disadvantage, considering that he is at the mercy of the public, who, by returning a majority of members opposed to him to the Board, can bring about his dismissal through his being too anxious to carry out the law.

There is another point in the Model By-laws to which I should like to draw attention. I cannot understand why walls should require to be thicker in suburban districts than in the metropolis; nor can I understand how the Local Government Board intended the By-laws to be carried out with respect to this matter. A two-story building can be erected with 9-in. walls, but by making a cellar underneath the walls should be 14 in. thick below the top story, which means that this building could not be underpinned without thickening the ground-floor story. This I fail to see the force of, as, in the metropolis, the cellar only would require to be 14-in. work. In the case of a building with a half cellar the walls of the ground-floor room would be 14 in. thick on one side and 9 in. on the other, as in sketch.



I should like to draw attention to some further points on another occasion, and while giving the Local Government Board credit for having introduced many valuable by-laws which have brought about a great improvement in building operations, I cannot but think the Model By-laws might have been very greatly improved and simplified, had their compilers availed themselves of the advice and experience of surveyors who had drawn up other by-laws, and in practice found out the weak points and defects thereof.

JOHN E. MORLEY, M.S.I.

HOLBORN UNION WORKHOUSE, MITCHAM.

SIR,—It is quite true that the excellently planned workhouses for the Parish of Lambeth and for the Wandsworth and Clapham Union, designed by Mr. Aldwinckle, are both upon the block system, and it is also the fact that many others designed upon this principle have for some time past been erected in various parts of London and the country; but, so far as I know, the statement made in your issue of the 23rd ult. [p. 588], that the Holborn Union Workhouse at Mitcham "is the first attempt to apply the principle *in its entirety* to a workhouse" is a perfectly correct one. The words in italics were omitted in Mr. Aldwinckle's letter in your last issue [p. 646], and "hence the confusion."

All the connecting corridors in the Mitcham building are quite open, and the air cannot, therefore, be conveyed through these corridors from one block to another. In all the other buildings referred to, the communication is by means of enclosed corridors, and therefore this clearly does not carry out the most improved principle of the block system.

H. SAXON SNELL.

WINDSOR TOWN-HALL WINDOWS.

SIR,—We shall be obliged if you will allow us to correct Mr. Warrington's assertion which appeared in your issue of the 9th ult. [p. 540]. Mr. Warrington simply painted the windows for us, and was in no way responsible for the design.

We have waited until after the windows were fixed to do this, in order that the gentleman who gave us the design and whose ideas we carried out might see them. We enclose his letter, which we shall be glad if you will publish with this, which will emphatically prove the correctness of our assertion.

We regret that this controversy should have arisen over so small a matter.

CHARLES BUSSELL, GIBBS, & Co.

"Windsor, October 28th, 1886.

"To Messrs. Bussell, Gibbs, & Co.

DEAR SIRS,—Replying to your inquiry respecting the stained glass windows you have just fixed for me in our Town Hall, I have pleasure in saying that you have truthfully carried out my idea of the design for the windows as expressed in the sketches I sent you.—Yours truly,

"GEO. CARTLAND."

PAINT FOR ROOFS.

SIR,—I have a large shed roof to paint white; it has been tarred and sanded, and I should be glad to know if any of your readers can recommend a preparation that would stop the tar eating through and so discolouring the white paint.

Any suggestions, I have no doubt, would be of service to others in a similar difficulty.

F. A. B.

Water Supply, Blackburn.—Guide Village, with about 500 inhabitants, is situated above the highest reservoir of the Blackburn Corporation Waterworks. Mr. J. B. McCallum, C.E., the Borough and Water Engineer, has recently put down two of Blake's patent hydraulic rams, capable of forcing about 30,000 gallons per day to a service-tank about three-quarters of a mile from the rams, and 170 ft. higher. The waste water from the rams gravitates to an adjacent reservoir. Mr. McCallum reports well of the working and efficiency of the rams.

Slough.—Mr. T. R. Richards has been appointed assessor to advise the committee in reference to the Slough Public Hall and Leopold Institute limited competition.

The Student's Column.

STONE QUARRIES.—XIX.

LIMESTONES (*continued*.)

Bath Stone.

THE oolitic freestone which comes from the neighbourhood of Bath is known to every architect. It is found principally in the *Great Oolitic series* of geologists, and is remarkable for the comparative paucity of fossils in a good state of preservation.

This, although so tantalising to the scientist, is rather a fortunate circumstance from a commercial point of view, as the stone has a better chance of being uniform, both in colour and texture. But, even allowing that the partial absence of fossils so materially influences the structure and appearance of the stone, it goes but a very little way to prove that the material is fitting for such a trying atmosphere as that we are now having in London. No doubt it is an important item in the cost of working, and personally we think that Bath stone carvings are about as good as any, when they are taken care of. We would point out, however, that the stone which goes under the name of "Bath" is about as variable in structure and durability as can well be. It would be useless to hide from ourselves the fact that buildings in the metropolis and elsewhere that have been constructed externally with Bath stone, have soon decayed, but it would be very rash to denounce the whole of the stone coming from that locality, on these grounds alone. We can point to elaborate carvings in the material that have stood out in the London atmosphere for over twenty-five years, and if we except the smoke and dirt which are always associated with such carvings here, they look almost as good as when they were put up. The angles and lines are still well preserved, and certainly the stones have withstood the action of the atmosphere as well as any limestone is capable of doing. Yet, in spite of such a good character, Bath stone is often seen presenting a washed-out and woe-begone appearance. The cause, as usual, is not far to seek. The fault does not always lie with the stone itself, but with those who select it. Taking the assertion that the fault lies with the stone, first let us examine it.

The rule we have so repeatedly laid down, that stones vary both in structure and composition in the same quarry, and even along the same horizon in the quarry, must be more rigidly enforced in the case of Bath stone than with any other we have mentioned. We can easily understand that when the material comes from different levels, variations in quality are most likely to ensue; but quite a different problem is presented when we know that stone from one level only is being supplied. It seems the most natural thing in the world to regard the material, under the last-mentioned circumstance, as being of only one quality, and so we are taken off our guard. The quarry-owners exercise considerable care in rejecting, as much as possible, all bad blocks, and by the time the stones arrive in London they are therefore in some measure selected; but the methods the quarry-owners use to discriminate between good and bad blocks may be somewhat different from our own, and to make sure of using the best stone it is always desirable to overhaul them. There can be no doubt that there is no place like the quarry itself for selecting the stone. All kinds of difficulties arise if it is not done before they reach London. For instance, the great majority of carvings, mouldings, and the like, in order to effect economy, both as regards labour and carriage, are treated on the spot; so that when these mouldings, &c., reach London one does not like to reject them, for obvious reasons. Besides, it is much more difficult to judge of the qualities of stone when dressed than when it is in the rough.

When the fault with the stone is not inherent it generally results from inattention to its proper seasoning, or from being improperly placed in the building. With reference to the former cause, we may mention that we think it absolutely necessary that all free-working limestones should be exposed to the air and well seasoned before being built up. As to the duration of time to be allowed to elapse between the quarrying and building up of the stone, we believe that no rule can be laid down, as it must vary with each kind. But of this much we feel certain, that in some instances Bath stones have not been long enough exposed to the seasoning process, whilst at others they have been overdone. We would call particular attention to those falling under the latter heading. There is no doubt that all stones, within certain limits, get harder as their "quarry-water" is dried out by the air. But the average Bath material, in addition to becoming harder as a whole, takes on a crust of hard matter, which is said to arise from a slight decomposition taking place, which will remove most of the softer particles, and leave the hardest and most durable to act as a protection to the remainder. It is self-evident, then, that if the stone is left too long in the seasoning process this crust will more or less form; and when it is subsequently dressed and another face formed (perhaps only a short space behind the originally seasoned one), the materials for again forming the hard surface crust might not be forthcoming quite so readily: the internal structure of the stone will, therefore, then be more vigorously acted upon by the deleterious atmospheric acids easily soaking in.

When the stone is not placed in its proper position in the building very disastrous results almost always follow. We cannot do better, perhaps, than to quote from one of the largest quarry-owners' pamphlets on this subject. They say that, with few exceptions, Bath stone should be laid on its natural bed (or with the bedding planes in a horizontal direction) as in this position it is found to weather better, and is also capable of carrying greater weight. This should be made a *sine quâ non*, as favourable results depend upon it. Cornices and copings are, however, found to stand the weather better when worked joint-bedded, and, in consequence, are generally so placed; but, when this is done, care should be taken that the angle quoins to the cornice and coping are upon the natural bed of the stone, as, if put joint-bedded, one side would be face-bedded. Tracery windows should be worked face-bedded, to avoid the bed running across the point or cusp.

There is yet another thing to which we would draw the student's attention. Certain kinds of Bath stone are more suitable for exterior than interior work. We have no objection to each kind being placed in the position most suitable to it, but we must demur to so many kinds being used in any one building. Surely, if one kind is used outside and one other inside, the requirements, as far as selection is concerned, will be amply fulfilled. We remember not long since seeing no less than *six* different kinds of Bath stone used in the porch of a church. Such a work might be a fitting ornament for a museum, but, if it is allowed to stand where it now is and architects judge in after years of the durability of Bath stone from it, the result cannot be but detrimental to its more extended use. One stone might stand well, perhaps, whilst its neighbour is crumbling to dust. But how are they to know from which quarry the better stone has come? It would be much more satisfactory to all concerned if only one kind were used in such a case.

We do not propose to describe here the minute details respecting the quarries and the stone raised. Strictly speaking, the majority of the workings being underground, and not open, are mines. Some of these are of vast extent, and a block plan of them has a very labyrinthine appearance, resembling the branches of a tree. On entering the tunnel of the Box Hill Quarry,—under guidance, of course,—it seems as though the end will never be reached. There is a series of main paths, with innumerable other paths leading from them on either side at every few yards. In fact, the whole working is a vast clearance with pillars of stone left here and there to prop up the roof. After a few miles walking we emerge from the tunnels and find ourselves at the Corsham end of the quarry, where, after a laborious climb up several stone steps we once more stand in the open air.

No powder is used in any of the Bath quarries, as it spoils so much stone, but the blocks are shifted from their natural position by picking, sawing, and wedging, assisted by cranes. The blocks after being trimmed or "scalped," as it is called, are drawn to the mouth of the quarries either by horses or by a locomotive engine, the latter being about the ugliest piece of machinery it is possible to conceive of.

The following are the names of some of the principal stones obtained:—

1. Bethel
2. Box Ground
3. Combe Down
4. Corngrit
5. Corsham Down
6. Corsham Ridge
7. Farleigh Down
8. Monk's Park
9. Stoke Ground
10. Westwood Ground
11. Winsley Ground

The colour of the whole of them varies from a white to cream tint. All are oolitic, but the sizes of the little spherules are not altogether uniform, and the grain of the rock alters accordingly. The durability of the stone, like that of Portland, depends almost entirely on the character and state of crystallisation of the material which cements the little spherules together, and the student should therefore turn to our remarks on Portland stone to get some idea of the method of selecting. As every block of stone so largely stands on its own merits, we do not care to state which of the Bath stones are superior to the others. For the same reason it is not necessary to say much about their respective chemical compositions, resistance to thrusting stress, amount of absorption of water, and matters of a like nature. We have several of the results of experiments before us, but in very few cases are the descriptions of the stone given in sufficient detail to justify us in identifying the kinds of stone to which they respectively refer, and we may as well at once state that, with the materials at our command, it would be simply ridiculous to draw any inferences as to quality, or kindred matters, from them. Many of the experiments were conducted years and years ago, and they not infrequently were made on stones from parts of the quarries no longer worked, though the names are perpetuated, and refer to remote workings in the same quarries. Before anything like sound deductions will be enabled to be made from a purely scientific standpoint, a great number of new experiments will have to be carried out, a principal feature in which should be an accurate description of the exact quarry and horizon of each of the specimens experimented upon, a matter hitherto neglected almost without exception.

With regard to the use of Bath stone, we may mention that although it was used as far back as the twelfth century, and probably even in the time of the Romans, the trade as now known did not spring up until the completion of the Box Tunnel in 1841. Box Church, built in the year 1200; Lacock Abbey; Balliol and Keble Colleges, Oxford; St. Mary Magdalene Church, Paddington; St. Jude's Church, South Kensington; New Arcade, Birmingham; Post Office, Guildford; St. Matthias Church, Plymouth; and the new Cathedral at Truro, are a few examples of edifices in which Bath stone has been largely employed.

Chilmark and Wardour Quarries.—With reference to our observations on these quarries [p. 647, *ante*], the proprietor writes to say that the stone known as "Tisbury Stone" is no longer worked, and that the name does not apply to the Chilmark stone, although, we may mention, the latter is quarried in the vicinity of Tisbury, and we regret that we were misinformed on the subject. He also states that the "trough" beds are not oolitic in structure, but in this he is quite incorrect, as an inquiry into the subject would soon convince him.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

14,467, Glazing. J. Jeffreys.

This invention relates to a new and improved system of glazing for roofs, &c. The bars to which the glazing is applied are made of teak or mahogany or other wood, and are rebated for glass on the upper side to a depth about the thickness of the glass. The glass is bedded in with a plastic material which does not get hard by exposure to the weather. The edges of the glass above the rebates are thinly covered with this plastic material and a strip of roofing felt, the width of the supporting bar, is then laid on, and the whole covered with a metal capping of half-hoop form with returned feet, and this capping is screwed down to the wooden bar by metal screws. Provision is made for carrying off condensed water on the inside by means of a thin strip of glass or metal curved to an S or ogee section.

14,500, Sash-line Socket. W. Musselwhite and W. Prewett.

This invention consists of an iron socket, and grip or pair of small jaws for holding the sash-cord. On the inside of the surface of these jaws are three pointed teeth, two in one jaw and one in the other; these engage the end of the sash-cord, and when

closed form a taper and fit into a little thimble-like socket, securely holding the cord. The fastener is fixed so as to strengthen the corner of the sash-frame.

14,793, Embossed Canvas for Walls. W. Scott-Morton.

With the view of improving and cheapening embossed canvas for decorating walls, a hollow metal cylinder, arranged to be heated by steam or other hot fluid, is used for embossing the plastic surface, which by this is more quickly dried and stiffened, and the sharp effects of the pattern are better preserved.

14,866, Fireplaces. R. M. Somers.

The object of the invention is to prevent the fumes of the burning coal being drawn out into the room by the draught caused by a lady's dress in passing, the opening or slamming of a door, or such like cause. A canopy is secured to the brickwork of the fireplace in that part of the fire-back which connects and forms the contracted part of the chimney. By this means the stray smoke is conducted into the chimney, and the draught up the chimney is encouraged or increased, and the projecting fire-back is, to a great extent, hidden from view. The canopy is of metal or of plain ornamental tiles framed in metal.

9,828, Lattice Work. F. H. Street and W. Ellis.

The lattice work is principally designed for use in the construction of ships' berths, and it is so made that it may have an extensible and collapsible motion given to it in one direction,—longitudinally, —without corresponding alteration of dimension in the other (or transverse) direction. It may also be used for garden seats, shelves, and cattle or stable fittings, &c.

10,261, Automatic Valves for Ventilating Pipes. J. Broadfoot.

A valve for ventilating pipes, such as are fitted in situations where it is desirable to prevent the passage of water from one compartment to others through which the ventilating pipes extend. In the automatic valve a pocket or recess into which water will drain is fitted, and when water fills into the pocket the valve-piece is raised by it and so closes the passage.

NEW APPLICATIONS FOR PATENTS.

Oct. 22.—13,477, T. Cheverton, Catch or Fastener.—13,492, W. Ellis, Rendering Laths and Cutting Veneers.—13,511, R. Briggs and Others, Kilns for Limestone, Cement, &c.

Oct. 23.—13,537, D. Lyon, Flushing Apparatus and Water Waste-preventer.—13,554, S. Johnson, Automatic Water-closet Apparatus.—13,577, J. Stott, Indicating Escape of Gas in Buildings.

Oct. 25.—13,596, J. Mitchell, Water Tap.—13,597, J. Parsons, Fall Pipes, and Fixing same.—13,603, C. Whitehouse, Screw or Twist Augers and Boring Bits.—13,616, R. Scholefield, Machinery for Making Bricks, Tiles, &c.—13,627, W. Clark and J. Furneaux, Hoist, &c.—13,632, H. Walker, Woodboring Tools.—13,647, A. Stone, Automatic Fasteners for Doors, Windows, &c.

Oct. 26.—13,670, J. Summerscales and H. Longsdon, Hinge Joint for Step Ladders, &c.—13,688, N. Locke, Opening and Closing Fanlights, &c.—13,693, J. Gozney, Cleaning Pans and Seats of Closets.—13,718, G. Capewell, Manufacture of Nails.—13,730, R. Crane, Water-supply Cisterns.—13,731, C. Letzing, Lock.—13,733, E. Pearson, Valve Arrangement and Container for Closets.

Oct. 27.—13,786, D. Webster and P. Pfeiffer, Cleaning Flues and Chimneys.

Oct. 28.—13,835, A. Caldwell, Controlling the Flow of Water into Dwelling-houses, Factories, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,289, T. Elsley, Attaching Door-knobs to Spindles.—11,633, D. Duncan and W. Welton, Automatic Air-valves for Water-pipes.—11,756, S. Gratrix, Lead Pipes, &c.—11,798, R. Knight, Hot-water Pipes for Heating Buildings.—11,868, L. Dove and J. Bush, Regulating Mechanism for Doors and Window-sashes.—11,937, R. Robinson, Brick-cutting Tables.—11,984, W. Dunn, Preventing Water-pipes Bursting during Frosty Weather.—11,985, W. Dunn, Preventing Water Freezing in Water-pipes.—12,311, W. Morrison, Cooking-ranges.—12,397, H. Whiteley, Regulating the Opening and Closing of Fanlights, &c.—12,401, E. Taylor, Opening, Closing, or Fastening Casements, &c.—8,643, H. Heim, Fireplaces or Stoves.—12,042, H. Broadway, Casements or Fanlight Stays and Fasteners.—12,407, W. Macfarlane, Fixing Pipes to Buildings.—12,421, W. Curzon and others, Cementitious Slabs.—12,470, E. Long, Concrete Blocks.—12,542, E. Blundstone, Plaster of Paris.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

13,100, E. Hughes, Feed-motion for Circular Saws, &c.—15,464, E. Preston and E. De Rusett, Lavatories.—15,860, H. Doulton, Joints of Stoneware Pipes.—16,096, H. Haddan, Construction of Terraces and Flat Roofs.—5,124, W. Allen, Ladders.—5,581, R. Rastrick and G. Hughes, Mitre-cutting Machine.—11,294, T. Whitehead, Tops or Cowls for Chimneys, &c.—11,922, J. Garfield, Ventilating Apparatus.—31, W. Joy, Utilisation of Waste Heat from Cement Kilns, &c.—2,896, W. Ross, Water-waste Preventers.—10,691, H. and L. Stollwerck, Stairs or Staircases.—11,091, J. Anderson, Bricks, Tiles, &c.—11,629, C. Heaton, Ornamental Cloissonné Work for Decorative Building Purposes.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

OCTOBER 25.

By HORNE, SON, & EVERSFIELD.

Fulham—88 and 89, Sherbrooke-road, 96 years, ground-rent 33*l.*	£890
Shoreditch, New Norfolk-street—Freehold stabling and premises	550

By WALTER HALL.

Twickenham, Fulwell-road—Kate Cottage, freehold	175

OCTOBER 26.

By JONES, LANG, & Co.

City—20 and 22, Gresham-street, 34 years, ground-rent 70*l.*	4,700
32, Gresham-street, and 7, Mumford-court, 20 years, ground-rent 123*l.* 3*s.*	4,800
Peckham—Ground-rents of 12*l.*, reversion in 62 years	360

By ORIZMANN & Co.

Hampstead-road—No. 162, 50 years, ground-rent 8*l.*	800
Camden-road—No. 48, term 44 years, ground-rent 6*l.* 5*s.*	1,055

By G. B. SMALLPEICE.

Bethnal Green—1 to 11 odd, Three Colts-lane, 31½ years, ground-rent, 23*l.* 10*s.*	1,920
Nos. 184, 186, and 188, Brady-street, 31½ years, ground-rent 6*l.*	365
43 to 99 odd, Seabright-street, 31½ years, ground-rent 72*l.* 10*s.*	3,955
44 to 88 even, Seabright-street, 31½ years, ground-rent 57*l.* 10*s.*	3,295
1 to 12, Teale-street, 31½ years, ground-rent 32*l.* 10*s.*	2,330
33 to 53 odd, Viaduct-street, 31½ years, ground-rent 27*l.* 10*s.*	1,790
55 to 65 odd, Viaduct-street, 29½ years, ground-rent 18*l.*; and ground-rents of 18*l.*, term 2 years	1,275
52 to 60 and 68 and 74 even, Viaduct-street, 31½ years, ground-rent 30*l.*	1,725

OCTOBER 27.

By JOSHUA BAKER & SON.

Harrow-on-the-Hill—Ida Villa and Ivy Cottage, freehold	1,930
Ground-rent of 3*l.*, reversion in 21 years	155
Sudbury, Pinner-road—Three freehold cottages	205

By G. F. FRANCIS.

Pimlico—19, Charlwood-street, 39 years, ground-rent 8*l.* 18*s.*	475

By C. W. DAVIES.

Islington—1 to 8, Goldsmith-place, 15 years, ground-rent 145*l.* 12*s.*	695

By G. B. SMALLPEICE.

Bethnal Green—3 to 41 odd, Seabright-street, 31½ years, ground-rent 62*l.* 10*s.*	3,380
2 to 42 even, Seabright-street, and 2, Viaduct-place, 31½ years, ground-rent 69*l.* 10*s.*	5,230
1 to 33, Viaduct-street, and 1, Viaduct-place, 31½ years, ground-rent 87*l.* 10*s.*	6,365
34, 36, 38, 40, 48, and 50, Viaduct-place, 31½ years, ground-rent 17*l.*	1,220

By D. SMITH, SON, & OAKLEY.

Tulse Hill—147, Upper Lawn, 61 years, ground-rent 30*l.*	1,460
Camberwell—73, 75, and 77, Denmark-hill, 70 years, ground-rent 80*l.*	1,075
Euston-road—15, Mabledon-place, 20 years, ground-rent 21*l.*	170

OCTOBER 28.

By J. C. PLATT.

Hammersmith—34, Southerton-road, 79 years, ground-rent 6*l.*	200

By GLASIER & SONS.

Kew—Freehold land, 4¼ acres	4,450
Battersea—50, Northcote-road, freehold	700

By A. WALTON.

Norwood—2, Clifton-villas, 66 years, ground-rent 8*l.*	160
Sydenham—Ground-rent of 25*l.*, reversion in 79 years	550

By C. P. WHITELEY.

Clerkenwell—81, St. John-street-road, 44 years, ground-rent 10*l.* 10*s.*	630
Plaistow—1 and 2, Swete-street, freehold	420
West Ham—6 and 8, Dirleton-street, 78 years, ground-rent 8*l.*	155

By G. B. SMALLPEICE.

Bethnal Green-road—Nos. 406 to 408 even, 31½ years, ground-rent 107*l.*	7,245
A plot of land, 31½ years, ground-rent 4*l.*	115
1 and 1A, Seabright-street, 32 years, ground-rent, 10*l.*	485
Nos. 383 to 417 odd, and 1, Canrobert-street, 32 years, ground-rent 103*l.*	6,105
1 to 12 and 14, Wolverley-street, 32 years, ground-rent 26*l.*	1,680
2 to 7, 9, and 11, Canrobert-street, 32 years, ground-rent 24*l.*	1,445
13 and 15 and 16 to 30 even, Wolverley-street, 32 years, ground-rent 24*l.* 1*s.*	1,300
1 to 4, Teale-street, and 46, Kay-street, 30½ years, ground-rent 15*l.*	980
Kingsland-road—33 and 35, Harwar-street, 2 years, ground-rent 2*s.*	22

By BLAKE & DANNATT.

Deptford—47, Douglas-street, 65 years, ground-rent 2*l.* 8*s.*	290
East Greenwich—52 to 55 even, Calvert-road, freehold	1,220
57 and 59, Calvert-road, freehold	585
64 to 78 even, Calvert-road, freehold	2,325

By E. STIMSON.

Newington—7, 8, and 9, Canterbury-terrace, 10 years, ground-rent 12*l.* 11*s.* 4*d.*	265
Walworth—72, Olney-street, 29 years, ground-rent 4*l.* 10*s.*	270
Camberwell—13, 15, and 17, Leipsic-road, 19 years, ground-rent 7*l.*	530
Battersea—37 to 45 odd, Lindford-street, 22 years, ground-rent 5*l.*	£235
West Dulwich—13, Croxted-road, 74 years, ground-rent 13*l.* 16*s.* 9*d.*	550
Ealing Dean—The freehold residence called Carrara	900
Ground-rents of 35*l.*, reversion in 90 years	800
Deptford—31 to 34, Heston-street, 89 years, ground-rent 16*l.*	400
Bermondsey—Ground-rent of 42*l.* 10*s.*, reversion in 78 years	1,020
Acton—Ground-rent of 31*l.* 10*s.*, reversion in 95 years	700
Walthamstow—Ground-rent of 18*l.*, reversion in 98 years	400

By NEWSON & HARDING.

Poplar—165, East India Dock-road, freehold	940
Stoke Newington—15, Mildmay-grove, 75 years, ground-rent 7*l.*	290
Homerton—34 to 48 even, Nisbet-street, 84 years, ground-rent 20*l.*	650
Highbury—70, Petherton-road, 63 years, ground-rent 7*l.* 7*s.*	600
9, Elphinstone-street, freehold	420
King's Cross—8, Derby-street, freehold	880
Marylebone—Ground-rent of 31*l.*, reversion in 34 years	595

OCTOBER 29.

G. B. SMALLPEICE.

Shoreditch—61, High-street, freehold	2,950
Kingsland—Ground-rent of 20*l.*, reversion in 62 years	850
Bethnal Green—Improved ground-rents of 244*l.* 10*s.*, term 32 years	2,900
Improved ground-rents of 199*l.* 10*s.*, term 32 years	2,350
Improved ground-rents of 210*l.*, term 32 years	2,830
Improved ground-rents of 80*l.* 10*s.*, term 32 years, with reversion to 1,000*l.* a year for 53½ years	4,840
Hackney-road—Improved ground-rents of 180*l.* 19*s.* 3*d.*, term 32 years	2,600
Improved ground-rents of 6*l.*, term 32 years	105
Improved ground-rents of 193*l.* 14*s.*, term 31 years	2,300

By THURGOOD & MARTIN.

High Holborn—No. 283, term 57 years, ground-rent 300*l.*	3,800

MEETINGS.

SATURDAY, NOVEMBER 6.

Association of Public Sanitary Inspectors.—Address by the Chairman of Council, Mr. G. B. Jerram. 7 p.m.

MONDAY, NOVEMBER 8.

Surveyors' Institution.—Opening address of the Session by Mr. W. J. Beadel, M.P. 8 p.m.

TUESDAY, NOVEMBER 9.

Institution of Civil Engineers.—Inaugural Address by the President, Mr. Edward Woods. 8 p.m.

WEDNESDAY, NOVEMBER 10.

Tylers' and Bricklayers' Company.—Dinner at the "Albion." 5·30 for 6 p.m.

United Arts Club.—General Meeting. 8 p.m.

THURSDAY, NOVEMBER 11.

Society of Telegraph Engineers and Electricians.—Mr. Gisbert Kapp on "The Predetermination of the Characteristics of a Dynamo." 8 p.m.

FRIDAY, NOVEMBER 12.

Bradford Historical and Antiquarian Society.—Mr. T. T. Empsall on "Bradford in the Seventeenth Century." 7·30 p.m.

Miscellanea.

Mineral-water Reservoirs, Harrogate.—On the 22nd ult. the ceremony of turning the water into the newly-constructed reservoirs was performed by the Mayor of Harrogate (Mr. Alderman Ellis). These works, which have been completed in the short space of four months, have been designed by Mr. E. Wareham Harry, C.E., the Borough Surveyor. The purpose for which they are intended is the storing of the valuable mineral water which hitherto has run to waste during the winter. The Corporation having decided to remedy the evil they instructed their engineer to prepare plans and estimates, which received the approval and sanction of the Local Government Board. The works consist of a series of twelve chambers, each about 19 ft. 6 in. square and 13 ft. deep, capable of holding an aggregate of 372,000 gallons. They are constructed of brickwork in cement, having a concrete flooring, and the sides being surrounded by the same material 15 in. thick. The roof consists of iron girders with concrete arches, the whole being covered with a layer of Limmer asphalte. The contractors have been Messrs. Longley Bros., Leeds and Harrogate, and the clerk of the works was Mr. W. J. Hague.

Builders' Benevolent Institution.—The thirty-ninth annual dinner in aid of the funds of this Institution took place on Thursday evening last in the Hall of the Worshipful Company of Carpenters, London Wall. Mr. Basil E. Peto, the President, occupied the chair, and covers were laid for about 150 persons. During the evening the Secretary, Major Brutton, announced subscriptions and donations to the amount of 678*l.* A report of the proceedings will appear in our next issue.

Birmingham Architectural Association. The opening meeting and *conversazione* of the present session took place at Queen's College, Paradise-street, on Tuesday night. Mr. F. B. Osborn (President) occupied the chair, and amongst those present were the Mayor (Alderman Martineau), Messrs. J. Everard (President of the Leicester Architectural Association), J. Jackson (secretary, Leicester), T. Camm, H. R. Smith, W. Churchill, J. A. Cossins, Victor Scrutton (secretary), &c. There was a large attendance. Letters of apology for non-attendance were received from the Royal Institute of British Architects, the Architectural Association (London), and from the Liverpool, Nottingham, Manchester, Edinburgh, Leeds, York, and Northern Architectural Associations. The President, in his address, said that one of the most important matters of the year was the proposed new charter of the Royal Institute of British Architects, which would inaugurate a new era in their profession. They had had two important competitions in the town during the last year,—the Assize Courts and the Workhouse Infirmary. Much as they wished that the competition could have been confined to Birmingham architects, yet they had in the Assize Courts a subject for congratulation,—namely, the employment of a professional referee, and the perfect fairness with which the competition was conducted.

Institution of Civil Engineers.—The first ordinary meeting of the session 1886-87, will be held on Tuesday, November 9th, 1886, at eight p.m., when the inaugural address will be delivered by the President, Mr. Edward Woods, and the presentation will take place of the medals, premiums, and prizes awarded during the last session.

The Office of Superintending Architect, M.B.W.—The report of which we made mention in our last (p. 650) was adopted by the Board on the 29th ult., and it was at the same time resolved that the whole question relating to the appointment of Superintending Architect be referred back to the Works and General Purposes Committee for further consideration and report.

Port Said British Hospital.—This hospital has been built from the designs of Viscountess Strangford, by Messrs. W. H. Lascelles & Co., and is a commodious airy structure of one story, admirably adapted for the Egyptian climate. It consists of two wings, one on each side of an open passage, and united under one roof at the entrance. The material used is Baltic fir, which will be painted outside and varnished within. At present the hospital is planned to contain thirty beds in five wards, the principal of which is 38 ft. long by 28 ft. wide, and the average height of the various apartments is 10 ft. to the eaves, or 19 ft. to the top of the ridge. The whole of the building stands on a frame, which will rest on concrete pillars 4 ft. above the ground, so as to allow of a free draught of air underneath. Inside the rafters of the wards and other rooms are lined with match-boarding, and the building will be entirely roofed with "Willesden Paper." Besides the accommodation for patients, there are quarters for the resident doctor and three nurses, a spacious bath-room, lighted from the roof, a kitchen, and necessary offices, and the dispensary, which is in a sense apart from the hospital, and is intended to be of service, not only to the patients, but generally to the native inhabitants of the Delta. Round three sides of the building runs a verandah, approached from the wards and rooms by French windows. The flooring of the structure is "tongued," by which means it is made thoroughly draught-proof, but the floors of the verandahs and over the open passage are latticed, to allow the rain-water to pass away. As the hospital now stands at Messrs. Lascelles's premises at Stratford, it is "in frame," and ready to be put on board ship for transport to Port Said as soon as its several parts have been numbered and taken down.—*Morning Post.*

Carlyle Mansions, Chelsea.—The Secretary of Wilkes's Metallic Flooring Company writes to say that the staircase in these buildings (illustrated in our last) has been entirely constructed by the company in Wilkes's patent metallic stone.

United Arts Club.—The first general meeting of this club, "for architects, painters, sculptors, and engineers," will be held, as will be seen from an advertisement in another column, on Wednesday next, the chair being taken by Mr. E. I'Anson.

Bradford Historical Society.—From the *Leeds Mercury* of the 30th ult. we learn that this Society opened its winter session on Friday, the 22nd ult., with an interesting paper by Mr. J. P. Pritchett, on the family of the Nevilles, and the castles built or developed by them, including Raby, Standrop, and Brancepeth castles; Brancepeth Church, Middleham Castle and Church, Coverham Abbey, Barnard Castle and Church, &c.

Diocesan Surveyorship.—Mr. R. Knill Freeman, architect, of Bolton-le-Moors, has been appointed (subject to the approval of the Bishop) to the office of Surveyor under the Ecclesiastical Dilapidations Act, 1871, for the whole diocese of Manchester for a period of three years. Thirty applications for the office were considered and first reduced to three, including Mr. R. K. Freeman, of Bolton-le-Moors; Mr. T. H. Myres, of Preston; and Mr. A. W. R. Simpson, of Blackburn.

The Mineral Products of the United States.—From an advance proof of the summary report of the mineral production of the United States in 1885, published by the United States Geological Survey, it appears that the value of building stone quarried in the States during 1885 was $19,000,000, or about the same as in 1884. The demand and consequent production of bricks and tiles increased to an estimated value of $35,000,000, as against $30,000,000 in 1884, and $34,000,000 in 1883. With the price of lime constant at 50 cents per barrel at the kilns, the production increased from 37,000,000 barrels in 1884 to 40,000,000 in 1885. The production of cement from natural rock increased to 4,000,000 barrels of 300 lb. each (against 3,900,000 barrels in 1884), but was valued at only $3,200,000. The production of artificial Portland cement amounted to 150,000 barrels of 400 lb. each (as compared with 100,000 barrels in 1884), with a total value of $292,500. The total production of cement of all kinds was 4,150,000 barrels, valued at $3,492,500, against 4,000,000 barrels, valued at $3,720,000 in 1884.

PRICES CURRENT OF MATERIALS.

TIMBER.	£. s. d.	£. s. d.
Greenheart, B.G. ....ton	6 10 0	7 0 0
Teak, E.I. ....load	9 0 0	14 0 0
Sequoia, U.S. ....foot cube	0 2 4	0 2 7
Ash, Canada ....load	3 0 0	4 10 0
Birch ,, ...	2 5 0	3 10 0
Elm ,, ...	3 10 0	4 10 0
Fir, Dantsic, &c.	1 10 0	4 0 0
Oak ,, ...	2 10 0	4 10 0
Canada	3 0 0	6 0 0
Pine, Canada red	2 0 0	3 10 0
,, yellow	2 5 0	4 0 0
Lath, Dantsic ....fathom	3 0 0	5 0 0
St. Petersburg	4 0 0	5 10 0
Wainscot, Riga ....log	2 15 0	4 0 0
,, Odessa, crown....	3 5 0	3 7 6
Deals, Finland, 2nd and 1st...std.100	7 0 0	8 0 0
,, 4th and 3rd	6 0 0	6 10 0

TIMBER (*continued*).	£. s. d.	£. s. d.
Deals, Riga	5 10 0	7 0 0
St. Petersburg, 1st yellow	8 10 0	14 0 0
,, 2nd ,, ...	7 0 0	8 0 0
,, white	7 0 0	10 0 0
Swedish	6 0 0	15 0 0
White Sea	7 0 0	17 10 0
Canada, Pine, 1st	17 0 0	29 0 0
,, ,, 2nd....	11 0 0	17 0 0
,, ,, 3rd, &c....	6 0 0	8 0 0
,, Spruce, 1st	8 0 0	11 0 0
,, ,, 3rd and 2nd	5 0 0	7 10 0
New Brunswick, &c....	5 0 0	7 0 0
Battens, all kinds	4 0 0	12 0 0
Flooring Boards, sq. 1 in., Prepared, first	0 9 0	0 13 0
Second	0 7 6	0 8 6
Other qualities	0 5 0	0 7 0
Cedar, Cuba ....foot	0 0 3	0 0 3½
Honduras, &c.	0 0 2½	0 0 3½
Australian	0 0 2	0 0 3
Mahogany, Cuba	0 0 4	0 0 7
St. Domingo, cargo average	0 0 4	0 0 7
Mexican ,, ...	0 0 3½	0 0 4½
Tobasco ,, ...	0 0 4	0 0 6½
Honduras ,, ...	0 0 4	0 0 6½
Maple, Bird's-eye	0 0 6	0 0 8
Rose, Rio ....ton	7 0 0	10 0 0
Bahia....	6 0 0	10 0 0
Box, Turkey	5 0 0	17 0 0
Satin, St. Domingo ....foot	0 0 6	0 0 10
Porto Rico	0 0 7	0 1 0
Walnut, Italian	0 0 4	0 0 5
METALS.		
IRON—Pig, in Scotland....ton	0 0 0	0 0 0
Bar, Welsh, in London	4 7 6	4 15 0
,, ,, in Wales	4 2 6	4 7 6
,, Staffordshire, London	5 10 0	6 0 0
Sheets, single, in London	6 15 0	8 10 0
Hoops ,, ...	6 0 0	7 0 0
Nail-rods ,, ...	5 15 0	6 10 0
COPPER—		
British, cake and ingot ....ton	44 0 0	45 0 0
Best selected	45 10 0	46 0 0
Sheets, strong....	51 10 0	52 0 0
,, India	49 19 0	0 0 0
Australian	0 0 0	0 0 0
Chili, bars	40 12 6	41 0 0
YELLOW METAL ....lb.	0 0 4	0 0 4½
LEAD—		
Pig, Spanish ....ton	13 15 0	13 17 6
English, common brands....	13 0 0	0 0 0
Sheet, English	13 17 6	14 0 0
SPELTER—		
Silesian, special ....ton	14 5 0	14 7 6
Ordinary brands....	14 2 6	14 5 0
TIN—		
Banca ....ton	0 0 0	0 0 0
Billiton....	0 0 0	0 0 0
Straits	101 10 0	0 0 0
Australian	102 0 0	0 0 0
English ingots	105 0 0	0 0 0
ZINC—		
English sheet ....ton	0 0 0	0 0 0
OILS.		
Linseed ....ton	20 5 0	20 15 0
Cocoanut, Cochin	35 10 0	36 0 0
Ceylon	26 10 0	0 0 0
Copra	0 0 0	0 0 0
Palm, Lagos	23 10 0	0 0 0
Palm-nut Kernel	0 0 0	0 0 0
Rapeseed, English pale	22 10 0	22 15 0
,, brown	21 0 0	21 5 0
Cottonseed, refined	18 10 0	19 10 0
Tallow and Oleine	25 0 0	45 0 0
Lubricating, U.S.	6 0 0	10 0 0
,, refined	8 0 0	13 0 0
TURPENTINE—		
American, in casks ....cwt.	1 8 0	0 0 0
TAR—		
Stockholm ....barrel	0 15 0	0 15 6
Archangel	0 10 6	0 11 0

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Road-Making and Paving Works	Hammersmith Vestry...	*Official*	Nov. 10th	i.
Sewerage Works, Putney	Estate Proprietors	F. Stocker	Nov. 15th	ii.
Paving Carriageway	Bermondsey Vestry.....	*Official*	do.	ii.
Drainage Works, Willesden	Metropolitan Rail. Co.	O. Claude Hobson	do.	ii.
Repairs and Painting Ten Houses....	.....	W. Buck.....	Nov. 16th	xiii.
Pumping Machinery....	Tottenham Local Board	— De Pape	do.	ii.
Engine-House, &c.	do.	do.	do.	ii.
Oak Park Fencing	Met. Board of Works	*Official*....	do.	i.
Main Drainage, Sewers, Pumping Stations, &c	do.	do.	Nov. 18th	ii.
Laying-out and Planting Infirmary Grounds...	St. Saviour's Union.....	Jarvis & Son	do.	ii.
Water Works (Buildings and Machinery).....	Farnham Water Co. ...	Pollard & Forder.....	Nov. 19th	ii.
Sea Walls & Steps, Cutting Cliffs, &c.	Dawlish Local Board...	J. S. Delbridge.....	Nov. 20th	ii.
Firewood	Lewisham Union.....	*Official*	Nov. 24th	ii.
Formation and Construction of Roads	Tunbridge Wells Lcl Bd	W. Brentnall.....	Nov. 26th	ii.
Destructor	Bournemouth Com. ...	G. R. Andrews.....	Nov. 29th	xiii.
Stores and Materials	Cheshire Lines Com. ...	*Official*	Dec. 3rd	ii.
Furnishing New Town-hall	Barrow-in-Furness Cor.	do.	Dec. 4th	xiii.
Sewage Precipitation Works, Barking Creek	Met. Board of Works...	do.	Jan. 7th	ii.
Blue Guernsey Granite	Acton Local Board.....	C. N. Lailey	Not stated...	xiii.
Methodist New Chapel, W. Kensington	.....	A. H. Goodall	do.	xiii.
Erection and Enlargement, &c., of Schools ...	School Bd. for London	*Official*	do.	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Deputy Inspector of Nuisances....	Liverpool Corporation	180*l.*	Nov. 25th	xvi.

TENDERS.

BATTERSEA.—For the construction of concrete river wall, dumb dock, flushing-chamber, &c., at Lombard-road Wharf, Battersea, for the Board of Works for the Wandsworth District:—

Dickenson, Loughborough Junction (accepted)	£1,100 0 0

[For full list see *Builder*, October 23, p. 615.]

BETHNAL GREEN.—For rebuilding Somerset Dairy, No. 2, Lisbon-street, for Mr. Lewis Jones. Mr. Edward Clark, architect, Strand. Quantities by the architect:—

A. Hood (accepted)	£4,830 0 0

BIRMINGHAM.—For new workhouse infirmary. Mr. W. H. Ward, architect, Birmingham. Quantities by the architect:—

Howell & Son, Bristol	£88,500 0 0
Everall, Malvern	87,278 0 0
Jones & Son, Wolverhampton	79,980 0 0
Biggs, Handsworth	79,000 0 0
Edge & Co., Birmingham	79,000 0 0
Smith, Leamington	76,550 0 0
Barnsley & Sons, Birmingham	75,880 0 0
Barker & Son, Handsworth	75,760 0 0
Sapcote & Sons, Birmingham	75,627 0 0
Moffatt, Birmingham	75,500 0 0
Horsman & Co., Wolverhampton	74,550 0 0
Lovatt, Wolverhampton	73,000 0 0
Webb, W. & J., Birmingham	72,900 0 0
Bowen, Birmingham	72,552 0 0
Rowbotham, Birmingham	72,500 0 0
Wall, London	68,788 0 0
Garlick, London	67,900 0 0
Gowing & Ingram, Birmingham	66,842 0 0
Storrs, Sons, & Co., Manchester	66,599 0 0
Horsley Bros., Birmingham	65,700 0 0
Potter, London	60,850 0 0
Bissett & Sons, Sheffield (accepted)	59,850 0 0
Robinson, Birmingham	59,353 0 0

COLCHESTER.—For alterations and additions to Higham House, for Mr. Thomas S. Furniss. Mr. Wm. H. Atkin Berry, architect, Bedford-row. Quantities by the architect:—

	Credit old materials.	Net.
F. Bennett, Ipswich	£1,837 6 5 ... £27 6 5 ...	£1,810 0 0
S. C. Parmenter, Braintree	1,586 0 0 ... 26 0 0 ...	1,560 0 0
Grimwood & Sons, Sudbury	1,576 0 0 ... 30 0 0 ...	1,546 0 0
G. R. Hawkings, Monks Eleigh	1,505 3 0 ... 10 0 0 ...	1,495 3 0
F. Dupont, Colchester	1,490 0 0 ... 55 0 0 ...	1,435 0 0
Saunders & Son, Dedham*	1,415 0 0 ... 35 0 0 ...	1,380 0 0

* Accepted.

CUBITT TOWN.—For finishing four houses in the Wharf-road, Cubitt Town, for Messrs. Rogers, Robinson, & Dumage. Mr. Stocker, surveyor, St. Mary Axe:—

W. Buckland, Cubitt Town*	£138 18 0

* Accepted.

ENFIELD.—For alterations at the Salisbury Arms, Bush Hill Park, Enfield, for Mr. Favers. Mr. H. I. Newton, architect, Queen Anne's-gate, Westminster:—

Patman	£733 0 0
Burman & Sons	717 0 0
Steel Bros.	695 0 0
Fairhead	636 0 0
Spencer & Co.	600 0 0

FINSBURY PARK.—For the erection of school rooms and lecture hall in rear of Primitive Methodist Church, Durham-road, Finsbury Park. Messrs. Thomas & Wm. Stone, architects, Great Winchester-street:—

Chaffery & Rogers	£678 0 0
Chant	550 0 0
Godfrey & Sons	540 0 0
Stead Bros.	530 0 0
Peppiatt	499 0 0

KENSINGTON.—For rebuilding No. 38, High-street, Kensington, for Mr. C. H. Lorberg. Mr. G. E. Edwards, architect, 11, Queen Victoria-street:—

Stevens	£1,795 0 0
Taylor	1,730 0 0
Marten, Wells, & Co.	1,548 0 0
Hussey	1,448 0 0
Shirren	1,443 0 0
Smith	1,439 0 0
Shepherd	1,438 0 0
Long	1,398 0 0
Ward & Lamble	1,369 0 0
Stimpson & Co.	1,360 0 0
C. Wall	1,350 0 0
Green	1,349 0 0

KENNINGTON.—For Home for Recruits, Kennington-lane, for the Receiver of the Metropolitan Police District. Mr. J. Butler, architect:—

Lanneran	£5,567 0 0
Tyerman	5,545 0 0
Sabey & Son	5,387 0 0
Hook	5,290 0 0
Beal	5,263 0 0
Down	5,150 0 0
Dickerson	5,177 0 0
Oldrey	5,170 0 0
Turker	5,160 0 0
Axsell	5,155 0 0
Finn	5,131 0 0
Howell	5,120 0 0
Staines & Son	5,088 0 0
Nightingale	5,080 0 0
Pack Bros.	5,000 0 0
Lather	4,990 0 0
Hart	4,963 0 0
Stimpson	4,955 0 0
Scrivener	4,950 0 0
Dobson	4,898 0 0
Parker	4,880 0 0
Church	4,789 0 0
Higgs & Hill	4,740 0 0

LEWISHAM.—For the erection of a house in the Rokeby-road, Lewisham, for Miss Green. Mr. T. W. Willis, architect:—

Ernest A. Roome	£377 0 0
Smith	360 0 0
Taylor (accepted)	343 0 0

LONDON.—For pewtering work at the Roebuck, High Holborn, for Mr. Dickinson. Messrs. Bird & Walters, architects:—

Warne	£170 0 0
Watts & Co.	129 15 6
Heath	129 0 0
Sanders	126 0 0
Edwards	125 14 0
Helling (accepted)	122 0 0

LONDON.—For rebuilding No. 33, Great St. Helen's, for the Worshipful Company of Leathersellers. M. G. A. Wilson, Surveyor to the Company, East India-avenue, Leadenhall-street. Quantities supplied:—

Colls & Son	£2,666 0 0
Dove Bros.	2,585 0 0
Kirk & Randall	2,400 0 0
Ashby & Horner	2,255 0 0
Richens & Mount (accepted)	1,962 0 0

LONDON.—For the erection of a house in Elgin-avenue, Maida Vale, for Mr. H. F. Batt. Mr. H. M. Newlyn, architect:—

Frost & Co. (accepted)	£1,450 0 0

NEW WANDSWORTH.—For alterations at the Plough Hotel, St. John's Hill, New Wandsworth, for Messrs. Young & Co. Messrs. H. I. Newton and Keith D. Young, joint architects:—

Jackson & Todd	£2,949 0 0
Burman & Son	2,585 0 0
Oldrey	2,571 0 0
Smith	2,436 0 0
Godden (too late)	2,195 0 0
Lamble	2,059 0 0

WALTON-ON-THAMES.—For alterations at Crutchfield House, for Mr. W. Lawrence. Mr. A. J. Bolton, architect:—

Weston, South Kensington	£572 0 0
Babbs	540 0 0
Brown	498 0 0
Parker	470 0 0

WOLVERHAMPTON.—For the erection of shop front and alterations, Penn-road, Wolverhampton, for Mr. Richard Lees. Mr. Joseph Lavender, architect, New Bank Buildings, Wolverhampton. Quantities by the architect:—

J. & W. Cockerill	£320 0 0
G. & F. Higham	304 0 0
S. Jones	304 0 0
H. Gough*	292 0 0

* Accepted, subject to deductions.

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